REPORT,

AND

SPECIAL REPORT,

FROM THE

SELECT COMMITTEE

ON THE

DAYLIGHT SAVING BILL,

TOGETHER WITH THE

PROCEEDINGS OF THE COMMITTEE,

MINUTES OF EVIDENCE,

AND APPENDIX.

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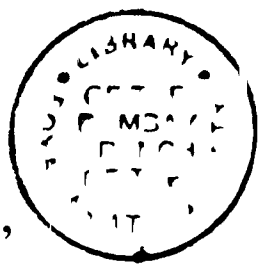

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30*th June*, 1908.

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1908.

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ORDER OF REFERENCE.

Thursday, 26th March, 1908.

Daylight Saving Bill,—read a second time :—

Bill *committed* to a Select Committee.—(*Mr. Robert Pearce.*)

Tuesday, 25th April, 1908.

Daylight Saving Bill,—The Select Committee on the Daylight Saving Bill was *nominated* of,—Mr. Harrison-Broadley, Mr. Holt, Mr. Hutton, Sir Walter Nugent, Mr. Robert Pearce, Captain Pirie, Colonel Philipps, Mr. Thomas Frederick Richards, and Sir Edward Sassoon.

Ordered, That the Committee have power to send for persons, papers, and records.

Ordered. That Three be the quorum.—(*Mr. Whiteley.*)

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REPORT.

THE SELECT COMMITTEE to whom the DAYLIGHT SAVING BILL was referred have considered the said Bill, and taken evidence thereon which they have agreed to Report to the House; and have gone through the Bill and made Amendments thereunto.

SPECIAL REPORT.

THE SELECT COMMITTEE to whom the DAYLIGHT SAVING BILL was referred:—HAVE agreed to the following SPECIAL REPORT:—

1. That the Committee have met and considered the said Bill, and have examined numerous Witnesses, records and papers, and have directed the said Bill to be reported to the House with amendments.

And the Committee have directed the Minutes of Evidence with an Appendix to be laid before the House.

2. And the Committee find that the Bill proposes the adoption of a local time in advance of Greenwich mean time in the case of Great Britain, and in advance of Dublin mean time in the case of Ireland, during the summer months, viz., from April to September in each year, with the object of promoting the earlier and more extended use and enjoyment of daylight during those months. And that such object is desirable and would benefit the community if it can be generally attained, and that the weight of the evidence submitted to the Committee agrees with and supports this view, though there was divergence of opinion as to the best mode of accomplishing it.

3. The paramount advantage the Committee find to be the greater use of daylight during the months named.

The effect of the proposals of the Bill would be:—

(1) To move the usual hours of work and leisure nearer to sunrise.

(2) To promote the greater use of daylight for recreative purposes of all kinds.

(3) To lessen the use of licensed houses.

(4) To facilitate the training of the Territorial forces.

(5) To benefit the physique, general health and welfare of all classes of the community.

(6) To reduce the industrial, commercial and domestic expenditure on artificial light.

4. The principle of the Bill has been supported by the Chambers of Commerce in London, Liverpool, Manchester, Bristol, Sheffield, and other towns, and by the Borough Councils of Glasgow, Huddersfield, Bournemouth, Hackney, Llandudno, and other places; by the London and North Western Railway Company, the London and South Western Railway Company, the Great Central Railway Company, and by the Great Eastern Railway Company, except as to Continental traffic, which on that railway is a little over $\frac{1}{8}$ per cent. of the passenger traffic and not more than 5 per cent. of the goods traffic; by many representatives of the manufacturing, commercial and shopkeeping classes; by the Secretary of the General Federation of Trade Unions,

comprising 700,000 members; by numerous associations for recreative purposes; by schoolmasters and others interested in education and the welfare of children. Evidence has been submitted showing the reception of the Bill by the Press, of which by far the largest proportion is favourable. The Post Office, represented by Sir Henry Babington Smith, K.C.B., agreed that the postal business in the United Kingdom and with the Colonies and United States could be easily accommodated to the proposals of the Bill, but that some difficulties would arise with regard to European postal business, and stated that the total letters and other postal articles dealt with every week averaged 48 millions, of which less than six millions are Continental and foreign.

5. Papers have been submitted showing the numerous Statutes, Rules, Regulations and Bye-laws which contain reference to clock-time.

6. The Committee have invited objections to the proposals contained in the Bill, and such as have been made appear in the Evidence, and may be summarised as follows:—

(A) Objections to the Bill altogether, or (B) to the particular proposals.

(A) Objections that the Bill is unnecessary or undesirable.

As to these the Committee agree that the objects proposed cannot be attained without legislation.

And that a single Act establishing local time for the United Kingdom of Great Britain and Ireland is better than an Act severally altering all the times prescribed by various Acts, Bye-laws and other rules for the conduct of civil business.

And that the interference with European traffic will be inappreciable compared with the general benefit to the nation at large, and can be easily overcome.

And that the interference with American business can be obviated without serious dislocation or loss by the adherence of those concerned to their present hours when necessary.

And that the various interests affected could without much initial difficulty adapt themselves to the alteration.

(B) As to objections to the particular proposals, viz.:—That the making of four alterations of 20 minutes each in April and four alterations of 20 minutes each in September would occasion undue public inconvenience and too much resulting interference with the ordinary measurement of time in those months by clocks and watches. The Committee considered the following proposals for obviating or minimising these difficulties,

(1) Three alterations of 30 minutes each in April and three alterations of 30 minutes each in September; or

(2) Two alterations of 30 minutes each in April and two alterations of 30 minutes each in September; or

(3) A single alteration of one hour in April and a single alteration of one hour in September; or

(4) A permanent alteration of one hour, and so adopting Mid-European time.

7. The Committee agree that this last proposal is eminently undesirable, and for the sake of simplicity and general public convenience, the Committee find that a single alteration of one hour in April and a similar alteration of one hour in September is the best mode of attaining the object of the Bill.

8. And the Committee recommend that these changes should take place at two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland, on the third Sunday in April, and at two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland, on the third Sunday in September of each year.

And the Committee amended the Bill accordingly.

9. And the Committee find there is no serious practical difficulty in adjusting clocks and watches to these seasonal changes.

The Committee consider that the Bill should be called the Local Time (Great Britain and Ireland) Bill.

The Committee consider that no interference with Greenwich mean time should be attempted, and that for all scientific purposes, such as astronomy or navigation, Greenwich mean time should continue to be used as heretofore.

PROCEEDINGS OF THE COMMITTEE.

Tuesday, 5th May, 1908.

MEMBERS PRESENT:

Mr. Hutton.	Mr. Thomas Frederick Richards.
Mr. Robert Pearce.	Sir Edward Sassoon.
Mr. Pirie.	

Sir EDWARD SASSOON was called to the Chair.

The Committee deliberated.

[Adjourned till Thursday next, at a quarter past Eleven o'clock.

Thursday, 7th May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Colonel Philipps.
Mr. Hutton.	Mr. Pirie.
Mr. Robert Pearce.	

Mr. *William Willett* was examined.

[Adjourned till Thursday next, at Eleven o'clock.

Thursday, 14th May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Pirie.
Mr. Robert Pearce.	Mr. Thomas Frederick Richards.

During the short absence of Sir EDWARD SASSOON, Mr. PIRIE was called to the Chair.

Mr. *J. F. S. Gooday*, General Manager of the Great Eastern Railway, Mr. *J. H. Vickery*, Colonel *Somerville*, and Mr. *Basil Holmes* were examined.

[Adjourned till Tuesday next, at Eleven o'clock.

Tuesday, 19th May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Robert Pearce.
Sir Walter Nugent.	Mr. Thomas Frederick Richards.

Sir *Robert Ball*, F.R.S., Sir *David Gill*, K.C.B., F.R.S., Professor *Rambaut*, Mr. *Thomas Wright*, and Mr. *James Montgomerie* were examined.

[Adjourned till Thursday next, at Eleven o'clock.

Thursday, 21st May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Robert Pearce.	Mr. Holt.
Mr. Pirie.	Sir Walter Nugent.
Mr. Thomas Frederick Richards.	

The Lord *Avebury*, attending by permission of the House of Lords, and Mr. *Robert Turnbull* were examined.

Mr. *John F. S. Gooday* was recalled and further examined.

Mr. *H. T. Holdrom* and Mr. *Arthur Lee* were examined.

[Adjourned till Tuesday next, at Eleven o'clock.

Tuesday, 26th May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Robert Pearce.	Mr. Thomas Frederick Richards.
Mr. Pirie.	Mr. Holt.

Dr. *Roberson Day*, Admiral the Hon. Sir *Edmund Fremantle*, G.C.B., Mr. *St. John Winne*, Mr. *Frank Hope-Jones* and Mr. *Alfred John Martin* were examined.

[Adjourned till Thursday next, at Eleven o'clock.

Thursday, 28th May, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Robert Pearce.
Mr. Pirie.	

Sir *George Livesey*, Mr. *Stanley Machin*, Mr. *E. Satterthwaite*, Mr. *J. J. Crosfield*, Mr. *Ernest Grindley*, Mr. *Sam Fay*, Mr. *Alexander Nichol*, Mr. *John Joseph Bexfield Campling*, and Mr. *R. B. Brook-Greaves* were examined.

[Adjourned till Tuesday next, at Eleven o'clock.

Tuesday, 2nd June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Thomas Frederick Richards.
Mr. Robert Pearce.	

Mr. *T. E. Hubbard*, Sir *William Ramsay*, K.C.B., Mr. *Gilbert Bartholamew*, and Mr. *Leon Harold Lee* were examined.

Mr. *William Willett* was recalled and further examined.

[Adjourned till Tuesday, June 16, at Eleven o'clock.

Tuesday, 16th June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Robert Pearce.
Mr. Pirie.	Mr. Thomas Frederick Richards.

Mr. *Edward Satterthwaite* was recalled and further examined.

Sir *Arthur Conan Doyle*, Mr. *P. J. Hemelryk*, Mr. *Charles Dukinfield*, Mr. *J. A. Johnston*, and the Rev. *E. de M. Rudolf* were examined.

[Adjourned till Thursday next, at Eleven o'clock.

Thursday, 18th June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Mr. Thomas Frederick Richards.
Colonel Philipps.	Mr. Pirie.
Mr. Robert Pearce.	

Mr. *H. Babington Smith*, C.B., Sir *William Christie*, K.C.B., Astronomer Royal, and Dr. *W. N. Shaw*, F.R.S., were examined.

[Adjourned till Tuesday next, at Eleven o'clock.

Tuesday, 23rd June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Holt.	Colonel Philipps.
Mr. Robert Pearce.	Mr. Thomas Frederick Richards.

Mr. *W. A. Appleton* was examined.

Room cleared.

DRAFT SPECIAL REPORT, proposed by the *Chairman*, brought up and read the first time as follows:—

1. That the Committee have met and considered the said Bill, and have examined numerous Witnesses, records and papers, and have directed the said Bill to be reported to the House with amendments.

(And the Committee have directed the Minutes of Evidence with an Appendix to be laid before the House.)

2. And the Committee find that the object proposed to be accomplished by the Bill is to promote the earlier use of daylight during certain months, viz., from April to September in each year. And that such object is desirable and would benefit large classes of the community if it can be attained, and that all the evidence submitted to the Committee agrees with and supports this view, though differing as to the mode of accomplishing it.

3. The paramount advantage the Committee find to be the use of daylight instead of artificial light during the months named.

The effect of the proposals of the Bill during the months named would be :—

(1) To shift the usual hours of work and leisure nearer to sunrise.

(2) To promote the greater use of daylight for recreative purposes of all kinds.

(3) To secure the earlier closing of licensed houses.

(4) To facilitate the drilling of territorial forces.

(5) To benefit the general health and welfare of all such classes of the community as could avail themselves of the proposals.

And the Committee find that some classes of workers, such as agriculturists, gardeners, sailors and others whose work is already regulated by daylight, and miners and others whose work is regulated by shifts or other such conditions, would remain unaffected by and unprejudiced by the proposals in the Bill if passed into law.

4. The Committee have invited objections to the proposals contained in the Bill, and such as have been made appear in the Evidence, and may be summarised as follows :—

Objections to the Bill altogether or to particular proposals in it.

As to objections that the Bill is unnecessary or undesirable.

On these the Committee agree that the objects proposed cannot be attained without legislation.

And that a single Act affecting the measurement of time is better than an Act affecting all the times prescribed by various Acts, by laws and other rules for the conduct of civil business.

And that the interference with European traffic is inappreciable compared with the general benefit.

And that the interference with American traffic can be obviated without serious difficulty by the adherence of those markets to their present hours, and foregoing the advantages of the Bill.

As to objections to the particular proposals, viz. :—That the creation of four short hours of 40 minutes in April and four long hours of 80 minutes in September would occasion undue public inconvenience and too much resulting interference with the ordinary measurement of time in those months by clocks and watches. The Committee considered these objections and various proposals for obviating or minimising the admitted difficulties, such as reducing the alterations either to—

(1) Three short hours of 30 minutes each and three long hours of 90 minutes ; or

(2) A single alteration by omitting one hour on the last Sunday in April and inserting an additional hour in the first Sunday in September ; or

(3) Only one alteration once for all by omitting one hour on the last Sunday in April, and so adopting Berlin civil time for all civic purposes in Great Britain but not in Ireland.

5. The Committee agree that this last proposal is eminently undesirable, and for the sake of unanimity and simplicity and general public convenience, the Committee find that the omission of one hour in April and the insertion of an additional hour in September is the best mode of attaining the object of the Bill.

6. And the Committee find that the most convenient hour to omit in April is the hour between two and three in the morning of the last Sunday in that month, and that the most convenient way of omitting it is to make the hour from two to three consist of two hours of 30 minutes each, and that the most convenient way of inserting an additional hour in September is to call that hour the September hour and insert it at the end of the second hour of the morning of the first Sunday in September.

And the Committee amended the Bill accordingly.

7. And the Committee find there is no serious practical difficulty in adjusting clocks and watches to these seasonal changes.

Interference with Greenwich mean time for the purposes of astronomy or navigation is expressly excluded by the Bill.

ANOTHER DRAFT SPECIAL REPORT, proposed by Mr. *Pirie*, brought up and read the first time as follows :—

1. That the Committee have met and considered the said Bill, and have examined numerous Witnesses, records and papers, and have directed the said Bill to be reported to the House with amendments.

(And the Committee have directed the Minutes of Evidence with an Appendix to be laid before the House.)

2. And the Committee find that the object proposed to be accomplished by the Bill is to promote the earlier and more extended use and enjoyment of daylight during certain months, viz., from April to September in each year. And that such object is desirable and would benefit large classes of the

community, and that almost all the evidence submitted to the Committee agrees with and supports this view, though differing as to the mode of accomplishing it.

3. The paramount advantage the Committee find to be the use of daylight instead of artificial light during the months named.

The effect of the proposals of the Bill during the months named would be :—

(1) To shift the usual hours of work and leisure nearer to sunrise and further from sunset.

(2) To promote the greater use of daylight for recreative purposes of all kinds.

(3) To lessen the use of licensed houses.

(4) To facilitate the drilling and marksmanship of territorial forces.

(5) To benefit the general health and welfare of all such classes of the community as could avail themselves of the proposals.

And the Committee find that some classes of workers, such as agriculturists, gardeners, sailors and others whose work is already regulated by daylight, and miners and others whose work is regulated by shifts or other such conditions, would remain unaffected and unprejudiced by the proposals in the Bill if passed into law.

4. The Committee have invited objections to the proposals contained in the Bill, and such as have been made appear in the Evidence, and may be summarised as follows :—

(A) Objections to the Bill altogether or (B) to particular proposals in it.

(A) As to objections that the Bill is unnecessary or undesirable.

On these the Committee agree that the objects proposed cannot be attained without legislation.

And that a single Act affecting the measurement of time is better than an Act affecting all the times prescribed by various Statutes, by laws and other rules for the conduct of civil business.

And that the interference with European traffic is inappreciable compared with the general benefit to the nation at large, and easily capable of being overcome.

And that the interference with American business can be obviated without serious difficulty by the adherence of the markets affected to their present hours, and, when necessary, by foregoing the advantages of the Bill.

And that the various interests affected could without much initial difficulty adapt themselves to the alteration.

(B) As to objections to the particular proposals, viz. :—That the creation of four short hours of 40 minutes in April and four long hours of 80 minutes in September would occasion undue public inconvenience and too much resulting interference with the ordinary measurement of time in those months by clocks and watches. The Committee considered these objections and various proposals for obviating or minimising the admitted difficulties, such as reducing the alterations either to—

(1) Three short hours of 30 minutes each and three long hours of 90 minutes ; or

(2) Two short hours of 30 minutes each and two long hours of 90 minutes each ; or

(3) A single alteration by omitting one hour on the last Sunday in April and inserting an additional hour in the first Sunday in September ; or

(4) Only one alteration once for all by omitting one hour on the last Sunday in April, and so adopting Mid-European time for all civic purposes in Great Britain but not in Ireland.

5. The Committee agree that this last proposal is eminently undesirable, and for the sake of unanimity and simplicity and general public convenience, the Committee find that the two short hours of 30 minutes each and two long hours of 90 minutes each is the best mode of attaining the object of the Bill.

6. And the Committee find that the most convenient hours to change in April are the hours between two and three in the mornings of the first two Sundays in that month, and that the most convenient way of changing is to make the hours from two to three on those mornings short hours, consisting of 30 minutes only, and that the most convenient way of changing in September is to make the hours between two and three in the mornings of the last two Sundays in that month long hours, consisting of 90 minutes each.

And the Committee amended the Bill accordingly.

7. And the Committee find there is no serious practical difficulty in adjusting clocks and watches to these seasonal changes.

Interference with Greenwich mean time for the purposes of astronomy or navigation is expressly excluded by the Bill.

8. The Committee are of opinion that the Act should not come into force until the expiration of one full year after its passing.

ANOTHER DRAFT SPECIAL REPORT, proposed by Mr. *Holt*, brought up and read the first time as follows:—

1. That the Committee have met and considered the said Bill, and have examined numerous Witnesses, records and papers.

2. The Committee find that the object proposed to be accomplished by the Bill is to promote the earlier use of daylight during certain months, viz., from April to September in each year. While this object, if attained, would benefit certain large classes of the community, the Committee find that during the months of June and July it would confer no benefit on the inhabitants of the northern parts of the country, where there is already ample daylight, and that the additional daylight gained in the evening could not be utilised by children and young persons without great risk of diminishing the period allotted to them for sleep.

3. The alteration proposed in the Bill would seriously disorganise the postal connections with the Continent of Europe during the summer months, and, unless the nominal hours of work were altered, would most injuriously affect all traders carrying on business by telegraph with America.

4. For scientific purposes and in consideration of our relations with foreign countries it is highly undesirable to introduce that uncertainty in the enumeration of time which must result from the alterations proposed in the Bill.

5. The advantages to be derived from the operation of the proposals in the Bill entirely depend on the maintenance of the present nominal hours of work, recreation, meals, rest, &c.

The suggestion that persons who are injuriously affected by the Bill can protect themselves by altering their nominal hours merely throws the onus of an alteration in nominal hours from those who are dissatisfied with existing arrangements on to those who are satisfied with them.

6. The Committee are of opinion that, so far as any section of the community is free to fix its hours of work, recreation, meals, &c., without reference to others, there is no need of legislation to enable them to fix earlier hours: so far as these hours are chosen with a view to uniformity, they must depend on the wishes of those to whom the choice of one hour rather than another is of the greatest importance, and no legislation altering the name of an hour will affect the actual hour chosen.

7. So far as the adoption of earlier hours of work is prevented by the Factory Acts or other similar legislation, the Committee consider that power might be given to the Home Office to authorise an earlier start and ending of work during summer months in such cases as they may think desirable.

8. In view of these considerations the Committee are of opinion that the scheme is both unnecessary and undesirable, and they have decided in consequence to report the Bill without amendment to the House.

Motion made and Question proposed,—That the Draft Special Report proposed by the Chairman be read a second time, paragraph by paragraph.—(Mr. *Robert Pearce.*)

Amendment proposed,—To leave out the words "the Chairman" and insert the words "Mr. Holt"—(*Mr. Holt*)—instead thereof.

Question put,—That the words "the Chairman" stand part of the question.

The Committee divided.

Ayes, 3.	Noes, 1.
Mr. Robert Pearce.	Mr. Holt.
Colonel Philipps.	
Mr. Thomas Frederick Richards.	

Main question put, and *agreed to.*

Further consideration of Draft Special Report postponed.

DAYLIGHT SAVING BILL.

Clause 1.

An Amendment proposed in page 1, line 2, to leave out the words "first four" and insert the words "last two"—(Mr. *Robert Pearce*)—instead thereof.

Question, That the words "first four" stand part of the Clause,—put, and *negatived.*

Amendment proposed to proposed amendment to leave out the word "two."—(Mr. *Holt.*)

Question put,—That the word "two" stand part of the proposed amendment.

The Committee divided.

Ayes, 3.	Noes, 1
Mr. Robert Pearce.	Mr. Holt.
Colonel Philipps.	
Mr. Thomas Frederick Richards.	

Main question, That the words " last two " be there inserted,—put, and *agreed to*.

Another Amendment proposed on page 1, line 3, to leave out the word " forty " and insert the word " thirty "—(the *Chairman*)—instead thereof.

Question, That the word " forty " stand part of the Clause,—put, and *negatived*.

Question, That the word " thirty " be there inserted,—put, and *agreed to*.

Question, That the Clause as amended stand part of the Bill,—put, and *negatived*.

Motion made and Question,—That the Committee do now adjourn (Mr. *Holt*), put, and *agreed to*.

[Adjourned till Thursday next, at Eleven o'clock.

Thursday, 25th June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Mr. Pirie.	Mr. Holt.
Mr. Robert Pearce.	Colonel Philipps.
Sir Walter Nugent.	

Further consideration of the Bill postponed.

DRAFT SPECIAL REPORT, proposed by the *Chairman*, considered paragraph by paragraph.

Paragraph 1 *agreed to*.

Paragraph 2.

Amendments made.

Another Amendment proposed, in lines 1 and 2, to leave out the words "to promote the earlier use of daylight during certain months," and to insert the words " the adoption of a local time for Great Britain and Ireland, in advance of Greenwich mean time in the case of Great Britain, and in advance of Dublin mean time in the case of Ireland during the summer months "—(Colonel *Philipps*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived*.

Question, That those words be there inserted,—put, and *agreed to*.

Another Amendment proposed, in line 2 after the word " year," to insert the words " with the object of promoting the earlier and more extended use and enjoyment of daylight during those months."—(Colonel *Philipps*.)

Question, That those words be there inserted,—put, and *agreed to*.

Other Amendments made.

Paragraph, as amended, *agreed to*.

Paragraph 3.

Amendments made.

An Amendment proposed, in line 6, to leave out the words " secure the earlier closing," and insert the words " lessen the use "—(Mr. *Pirie*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived*.

Question,—That those words be there inserted,—put, and *agreed to*.

Other Amendments made.

Another Amendment proposed, in line 8, after the first word " the," to insert the word " physique."

Question put, That the word " physique " be there inserted.

The Committee divided.

Ayes, 4.	Noes, 1.
Mr. Holt.	Mr. Robert Pearce.
Sir Walter Nugent.	
Colonel Philipps.	
Mr. Pirie.	

Another Amendment made.

Another Amendment proposed, in sub-paragraph (5), to leave out all the words after the word "community" down to the end of the sub-paragraph.—(Colonel *Philipps.*)

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived.*

Another Amendment proposed, after sub-paragraph (5), to insert the following sub-paragraph :

"(6) To reduce the industrial, commercial and domestic expenditure on artificial light."—(Col. *Philipps.*)

Question, That the proposed new sub-paragraph be there inserted,—put, and *agreed to.*

Further consideration of paragraph postponed.

Amendment proposed, to insert the following new paragraph in the Report—

"The principle of the Bill has been supported by the Chambers of Commerce in London, Liverpool, Manchester, Bristol, Sheffield, and Wolverhampton, and by the Borough Councils of Glasgow, Huddersfield, Bournemouth, Hackney, Llandudno, and other places; by the London and North Western Railway Company, the London and South Western Railway Company, the Great Central Railway Company, and by the Great Eastern Railway Company, except as to Continental traffic, which is about ·137 of the passenger traffic and five per cent. of the goods traffic; by the Automobile Club and the Motor Union; by many representatives of the manufacturing and shopkeeping classes; by Mr. Appleton, the Secretary of the Federated Trade Unions, comprising 700,000 men; by numerous associations for recreative purposes; by schoolmasters and others interested in education, and in the welfare of children. Papers have been submitted showing the numerous Statutes, Rules, Regulations and By-laws which contain reference to clock-time, and other papers showing the reception of the Bill by the Press, of which by far the largest proportion is favourable. Many eminent persons have testified in favour of the Bill, including Lord Avebury, Sir Robert Ball, Professor Rambaut, Sir William Ramsay, Sir Arthur Conan Doyle, Admiral Fremantle, and Mr. P. E. J. Hemelryk. Other gentlemen, though in favour of the objects, are adverse to the methods proposed, namely, the Astronomer Royal, Sir David Gill, Sir George Livesey, and Dr. W. N. Shaw, of the Meteorological Office. Mr. Willett submitted a long list of persons of all ranks in life and various occupations expressing approval of the proposals. The Post Office, represented by Mr. H. Babington Smith, stated that the postal business in the United Kingdom and with the Colonies and United States could be easily accommodated to the proposals of the Bill, but that some difficulties would arise with regard to European postal business, and that the total postal articles dealt with every week averaged 48 millions, of which 5¾ millions are Continental and foreign."—(Mr. *Pearce.*)

Amendments made to the proposed new paragraph.

Another Amendment proposed to the proposed new paragraph, in lines 10 and 11, to leave out the words "showing the numerous Statutes, Rules, Regulations and By-laws which contain reference to clock-time, and other papers."—(Colonel *Philipps.*)

Question, That the words proposed to be left out stand part of the proposed new paragraph, —put, and *negatived.*

Another Amendment proposed to proposed new paragraph, to leave out all the words from the word "many," in line 13, to the word "proposals," in line 18 (both inclusive).—(Mr. *Pirie.*)

Question put—That the words proposed to be left out stand part of the proposed new paragraph.

The Committee divided.

Ayes, 1.	Noes, 3.
Mr. Robert Pearce.	Sir Walter Nugent.
	Colonel Philipps.
	Mr. Pirie.

Other Amendments made to proposed new paragraph.

Question, That the proposed new paragraph be inserted in the Report,—put, and *agreed to.*

Amendment proposed, to insert the following new paragraph in the Report :—

"Papers have been submitted showing the numerous Statutes, Rules, Regulations and By-laws which contain reference to clock-time."—(Mr. *Robert Pearce.*)

Question, That the proposed new paragraph be inserted in the Report,—put, and *agreed to.*

Paragraph 4.

Amendments made.

Another Amendment proposed, in line 6, to leave out the words "affecting the measurement of time," and insert the words "establishing local time for the United Kingdom of Great Britain and Ireland"—(Mr. *Robert Pearce*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Other Amendments made.

Another Amendment proposed, in line 9, after the word "benefit," to insert the words "to the nation at large, and can be easily overcome."—(Mr. *Pirie.*)

Question, That those words be there inserted,—put, and *agreed to.*

Other Amendments made.

Another Amendment proposed, in line 11, to leave out the words "and foregoing the advantages of the Bill," and to insert the words "when necessary"—(Mr. *Pirie*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived*

Question, That those words be there inserted,—put, and *agreed to.*

Another Amendment proposed, after the Amendment last made, to insert the words, "And that the various interests affected could without much initial difficulty adapt themselves to the alteration."—(Mr. *Pirie.*)

Question, That those words be there inserted,—put, and *agreed to.*

Another Amendment proposed, to leave out all the words from the second word "the," in line 12, to the end of the paragraph, and insert the words, "making of four alterations of 20 minutes each in April and four alterations of 20 minutes each in September would occasion undue public inconvenience and too much resulting interference with the ordinary measurement of time in those months by clocks and watches. The Committee considered the following proposals for obviating or minimising these difficulties:—

"(1) Three alterations of 30 minutes each in April and three alterations of 30 minutes each in September; or

"(2) Two alterations of 30 minutes each in April and two alterations of 30 minutes each in September; or

"(3) A single alteration of one hour in April and a single alteration of one hour in September; or

"(4) A permanent alteration of one hour, and so adopting Mid-European time"—(Col. *Philipps*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put and *negatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Paragraph, as amended, *agreed to.*

Paragraph 5.

An Amendment made.

Another Amendment proposed, in lines 2 and 3, to leave out the words "the omission of one hour in April, and the insertion of an additional," and to insert the words "a single alteration of one hour in April, and a similar alteration of one"—(Col. *Philipps*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *egatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Paragraph, as amended, *agreed to.*

Paragraph 6.

An Amendment proposed, to leave out all the words after the word "Committee," in line 1, down to the word "September," in line 5, and to insert the words, "recommend that these changes should take place at two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland, on the third Sunday in April, and at two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland, on the third Sunday in September of each year"—(Colonel *Philipps*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Paragraph, as amended, *agreed to.*

Paragraph 7.

An Amendment proposed, to leave out all the words after the word "changes," in line 2, to the end of the paragraph, and to insert the words:—"The Committee consider that the Bill should be called the Local Time (Great Britain and Ireland) Bill. The Committee consider that no interference with Greenwich mean time should be attempted, and that for all scientific purposes, such as astronomy or navigation, Greenwich mean time should continue to be used as heretofore"—(Colonel *Philipps*)—instead thereof.

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Paragraph, as amended, *agreed to.*

DAYLIGHT SAVING BILL—further considered.

Clause 2.

An Amendment proposed, to leave out Clause 2.—(Colonel *Philipps.*)

Question, That Clause 2 stand part of the Bill,—put, and *negatived.*

Clause 3.

An Amendment made.

Another Amendment proposed, on page 1, line 17, to leave out all the words after the word "Act," down to the end of the Clause.—(Colonel *Philipps.*)

Question, That the words proposed to be left out stand part of the Clause,—put, and *negatived.*

Clause, as amended, *agreed to.*

Clause 4. (*Now Clause* 2).

An Amendment made.

Another Amendment proposed, on page 1, line 25, to leave out the word "British," and insert the word "Local"—(Colonel *Philipps*)—instead thereof.

Question, That the word "British" stand part of the Clause,—put, and *negatived.*

Question, That the word "Local" be there inserted,—put, and *agreed to.*

Another Amendment proposed, at the end of the Clause to add the words "in Great Britain and Ireland."—(Colonel *Philipps.*)

Question, That those words be there added,—put, and *agreed to.*

Another Amendment proposed, after the Amendment last made, to add the words, "And whenever any expression of time occurs in any Act of Parliament, deed, or other legal instrument, the time mentioned or referred to shall, unless it is otherwise specifically stated, be held in the case of Great Britain and Ireland to be local time as prescribed by this Act."—(Colonel *Philipps.*)

Question, That those words be there inserted,—put, and *agreed to.*

Clause as amended, *agreed to.*

Clause 5. (*Now Clause* 4).

An Amendment proposed, on page 1, lines 27 and 28, to leave out the words "Daylight Saving," and insert the words "Local Time (Great Britain and Ireland)"—(Colonel *Philipps*)—instead thereof.

Question, That the words "Daylight Saving" stand part of the Clause,—put, and *negatived.*

Question, That those words be there inserted,—put, and *agreed to.*

Clause, as amended, *agreed to.*

New Clause ("Local Time in Winter and Summer months") brought up and read the first time as follows:—

"From two o'clock in the morning Greenwich mean time in the case of Great Britain and Dublin mean time in the case of Ireland of the third Sunday in April in each year until two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland of the third Sunday in September in each year the local time shall be in the case of Great Britain one hour in advance of Greenwich mean time and in the case of Ireland one hour in advance of Dublin mean time, and from two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland of the third Sunday in September in each year until two o'clock in the morning Greenwich mean time in the case of Great Britain, and Dublin mean time in the case of Ireland of the third Sunday in April in each year local time shall be in the case of Great Britain the same as Greenwich mean time and in the case of Ireland the same as Dublin mean time."—(Colonel *Philipps.*)

New Clause read a second time, and added to the Bill.

[Adjourned till Tuesday next, at Five o'clock.

Tuesday, 30th June, 1908.

MEMBERS PRESENT:

Sir EDWARD SASSOON in the Chair.

Colonel Philipps.	Mr. Pirie.
Mr. Robert Pearce.	Mr. Thomas Frederick Richards.

DAYLIGHT SAVING BILL—further considered.

Preamble, *agreed to.*

Title, *agreed to.*

Ordered, To Report the Bill as amended to the House.

DRAFT SPECIAL REPORT proposed by the *Chairman* further considered

Postponed paragraph 3 further considered.

An Amendment proposed, to leave out all the words from the word "and," in line 10, to the end of the paragraph.—(Colonel *Philipps.*)

Question, That the words proposed to be left out stand part of the paragraph,—put, and *negatived.*

Question, That this Report, as amended, be the Special Report of the Committee to the House, —put, and *agreed to.*

Ordered, To Report together with the Minutes of Evidence and an Appendix.

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MINUTES OF EVIDENCE.

Thursday, 7 May, 1908.

MEMBERS PRESENT:

Mr. Holt.	Mr. Pirie.
Mr. Hutton.	Colonel Philipps.
Mr. Robert Pearce.	Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. WILLIAM WILLETT, F.R.A.S., called in; and Examined.

Chairman.

1. Do you exercise any profession?—Yes, I am a builder.

2. In London?—In London, Brighton and elsewhere.

3. Could you tell the Committee whether anybody besides yourself is promoting this scheme?—No one else.

4. You are doing it entirely yourself?—Yes.

5. I think it will be more convenient if you would kindly give the Committee a general statement of your views as regards the expediency and the practicability of the adoption of your scheme?—I am quite right in saying that I entered upon this scheme entirely by myself, but, as I sit here, I have the honour to be able to speak in the name of others besides myself, for I have given to each Member of the Committee a copy of a manifesto, which has been signed by a number of gentlemen, whose names I ask leave to read, so that you may see that I do not come here to speak only in my own name, but in the names of many eminent men in various walks of life.

6. I do not think it is necessary to read all these names?—I should like, with your permission, to read some of them, because I should like to impress the Committee with the substantial character of the demand which is being put forward for an alteration with reference to the hours of the working day.

7. Do not you think it would suit your purpose if the names were copied and appear in a list, unless you wish to call attention to any particular names?—The reason why I want to read them out is that I want to ask you as we go along which of these gentlemen you would like to appear before you as witnesses. I do not know exactly how you propose to conduct this inquiry, but I assume that you will require to see certain witnesses?

8. Obviously?—And here we have a number of men whose names I should like to read, and ask you to name any particular person that you would like to see before you as a witness, in order that someone might make arrangements with them to come. I will only read the principal names here.

Chairman—continued.

9. Yes, read the principal names, please?—Sir William Anson, Warden of All Souls' College, Oxford; Mr. Robert Armitage, M.P., ex-Lord Mayor of Leeds; Mr. Owen Balmforth, Mayor of Huddersfield, on behalf of the Huddersfield Borough Council—so that I speak here not only on behalf of the Mayor of Huddersfield, but on behalf of the town of Huddersfield, a town of 100,000 inhabitants; Mr. Godfrey Baring, J.P., M.P., Chairman of the Isle of Wight County Council; Sir Thomas Barlow, M.D., Physician to the King. I have a letter from Sir Thomas Barlow, which I shall probably read later on. If you think any of these gentlemen should be called, perhaps you will make a note as I go along. Mr. Gilbert Bartholomew, Chairman of Bryant and May's; Mr. John H. Bell, of His Majesty's Nautical Almanac Office; Mr. Bennie, of The Clyde Machine Tool Company, Glasgow, a large Company in Glasgow; Mr. Bevan, Chairman of the Board of Directors of Barclay & Company, Limited, Bankers; Archdeacon Bevan, Rector of Chelsea; Mr. George Billings, Mayor of Hackney, and Member of the London County Council, on behalf of the Hackney Borough Council; so that I speak also on behalf of the population of Hackney, 220,000 inhabitants, a resolution having been passed by the Borough Council; Sir William Bilsland, Lord Provost of Glasgow; Sir Edward Brabrook, late Registrar of Friendly Societies; Mr. John Brigg, Director of the Leeds and Liverpool Canal; the Bishop of Bristol; Mr. Tootal Broadhurst, Director of the London and North Western Railway Company, and late High Sheriff of Lancashire; Mr. Brodie, M.P., partner in Findlay, Durham and Brodie; the Right Hon. Sir John T. Brunner, Bart., M.P., Chairman of Brunner, Mond and Company; Sir William Bull, M.P., Chairman of J. W. Singer and Sons—I am missing

Chairman—continued.

missing a number of Members of Parliament; the Earl of Clarendon; Dr. Clifford, of Westbourne Park Chapel; Mr. Alexander Cross, M.P., senior partner of Alexander Cross and Sons; Captain the Viscount Dalrymple, M.P.; the Hon. Mr. Justice Darling; the Hon. Mr. Justice Bargrave Deane; Mr. A. Denny, of the great firm of Denny Brothers, shipbuilders, Dumbarton; Mr. Dixon, managing Director of the Fine Cotton Spinners and Doublers' Association; Mr. Docker, Chairman of the Amalgamated Carriage Company, Birmingham; Judge Edge; Judge Emden; the Bishop of Exeter; Mr. Farquharson, President of the Timber Trades Federation of the United Kingdom; the Right Hon. Sir George Farwell, Lord Justice of Appeal; Mr. Forster, M.P.; the Hon. Sir Charles W. Fremantle, late Deputy Master of the Mint; Sir John Gorst; Mr. Corrie Grant, M.P.; Mr. Grindley; the Hon Walter Guinness, M.P.; Sir Alexander Henderson, Chairman of the Great Central Railway Company; Mr. Charles Higginbotham, on behalf of the Calico Printers' Association; Mr. John S. Higham, M.P., ex-Mayor of Accrington; Mr. John Hodge, M.P., Secretary of the British Steel Smelters, Mill Iron and Tinplate Workers' Association; Mr. Henry Holloway, of Messrs. Holloway Brothers, Builders and Contractors; Mr. Ebenezer Howard, founder of the Garden City Association; Sir Alfred Jones, senior partner of Elder, Dempster & Co., and President of the Liverpool Chamber of Commerce; Lord Kinnaird, Lord High Commissioner to the Church of Scotland; the Earl of Kinnoull; Sir Philip Magnus, M.P.; Sir Charles McLaren, M.P., Chairman of the Metropolitan Railway Company; the Earl of Meath; the Metropolitan Gardens Association; Viscount Milner; the Hon. Mr. Justice Neville; Lord Newton; Sir Henry Norman, M.P.; Sir Charles Owens, General Manager of the London and South-Western Railway; Mr. Pike Pease, M.P.; Mr. Howard Pochin, Director of the Standard Engineering Company, Leicester; Mr. Priestly, M.P., ex-Mayor of Bradford; Professor Rambaut; *Radcliffe Observer*, Oxford; Sir William Ramsay; Mr. Rees, M.P.; Major Renton, M.P.; Mr. Stuart Samuel, M.P.; Lord Sandys; Mr. Henry Slattery, Chairman of the Board of Directors of the National Bank; Mr. Philip Snowden, M.P., late Chairman of the Independent Labour Party; The Bishop of Southampton; Sir Benjamin Stone, M.P.; Mr. R. N. Stubbs, Chairman and on behalf of the Winsford Urban District Council; I speak for them also, a resolution having been passed; Mr. J. E. K. Studd, President of the Polytechnic, Regent Street; Mr. St. Loe Strachey, Editor of the *Spectator*; Mr. Austin Taylor, M.P.; Sir Edward Tennant, M.P.; Dr. Traill, Provost of Trinity College, Dublin; Alderman Sir George Truscott; Dr. Warren, Vice-Chancellor of Oxford University; Lord Wenlock; Mr. G. E. Bridge, whose name does not appear on your list, Mayor of Bournemouth, and on behalf of the Bournemouth Borough Council, who also have passed a resolution in favour of this proposal. That makes four Borough Councils or Town Councils that have passed resolutions in favour: Huddersfield, Bournemouth, Winsford and Hackney. Lord Castletown, Chancellor of the Royal University of Ireland; Sir Arthur Conan Doyle; and Mr. Gwynne, Editor of the *Standard* newspaper. I think that will be enough. There are others here.

Chairman—continued.

10. I think, for the present, that will do for reading the names. Will you please go on with your main evidence?—Then I have prepared here a small sketch, showing what is taking place to-day. The sun rose this morning at about 4.20. The sun would be at its zenith at noon. Between 4 and 12 noon is, roughly, about eight hours. Most of us, I suppose, had breakfast at about 9 o'clock. Five-eighths of the youth of the sun, if I may term it so, five-eighths of its age to-day was already gone before, probably, most of us entered upon our duties, or our pleasures of the day. That small diagram (*handing in the same*) shows how much of the youth of the day, if I may so term it, has already gone. And I submit that the early hours of the day provide the joyous hours of the day; there is more beauty in the youth of the day, as there is in the youth of Nature; in all youth we find the best and most attractive features of everything, whether it be in trees or anything else. So it is in the early part of the day, I submit; the early hours of the day are the more joyous hours of the day, and of those early hours that diagram shows how much has gone. This reflection has been borne in upon me, owing to the habit I have had for the last 33 years of being on horseback at 7 o'clock in the morning, wandering about chiefly by myself. I have noticed that no one practically is about, an odd labourer going to his work, a postman, a milkman and a sweep are about all the persons you meet in the early morning.

11. I do not like to interrupt you, but I think the principal point with regard to which the Committee would like elucidation is with regard to the objections which are raised to the scheme. I think we may take it for granted that everybody approves of the idea of increasing the daylight; the Members of the Committee can put questions to you later on as to that; but it will save the time of the Committee very considerably if for the present you will concentrate your attention towards explaining or surmounting the objections that you know have been raised to the alterations that you propose. For instance, I would like you, if you can do it now, to give the Committee some evidence as regards the validity or otherwise of the objections raised by the clock-makers?—May I then take it for granted that the Committee is of opinion that the change is desirable?

12. For the present, certainly, you may take it for granted?—I have brought here a number of proofs of witnesses who will be prepared to give you evidence. I have also here a letter from Sir Robert Ball; I have asked him to give evidence.

13. The Astronomer Royal?—He has been Astronomer Royal in Ireland; he is now Professor of Astronomy at the Observatory, Cambridge. I wrote, and asked him, as I asked everybody. I not only asked the leading men whom I know to be in favour of this scheme, but I have written to every man who has made objections, and asked him to come and give evidence against the scheme; because I want that. It is not for me to give evidence

Chairman—continued.

evidence against it; I want these men who object to come and give evidence against it. I will read what Sir Robert Ball says: "Dear Mr. Willett, I find it very difficult to fill up in the way you desire your admirable schedule. The points you make seem so obvious that I hardly see how any testimony is required for them. I might say (if anyone doubted it) that the astronomical principles are quite sound, and that the particular arrangement of dates that you have chosen is the best possible (probably no one will doubt this)"—but they will—"and I might explain how standard time could still be maintained for all scientific purposes. I might also minimise the difficulty (if anybody raised it) about self-registering barometers, and other instruments which are consulted by the public. Beyond this, perhaps, I have hardly anything to say that might not be said by the man in the street. Of course, if I knew what arguments the opponents will bring forward, I might have more to say. I am not a tramway shareholder, but I am a gas company shareholder, so I hope you will not expect me to answer 15 or 16. . . . When will the Committee want us? I shall be out of reach unavoidably the greater part of next month." So, if the Committee desire, and I think they will, to see Sir Robert Ball, it should be at an early date. I have written to the Astronomer Royal, Sir William Christie, and to Sir Norman Lockyer. The Astronomer Royal has not, I am sorry to say, replied to any of my letters. I have written to him three or four times, and he has not replied to one. Sir David Gill I have also written to, and have had no reply. These are opponents.

14. It will be all the more necessary to ask them to come and give evidence?—Exactly. I wish them to come and give evidence. Against them I put Sir Robert Ball, Sir William Ramsay, Professor Rambaut and Professor Turner, of Oxford.

Mr. *Pearce.*

15. And the representative of the Nautical Almanac Office?—Yes, and Mr. Bell, of the Nautical Almanac Office. It is rather on different lines, but still it is desirable that, as a scientific man, he should be heard. The Chairman asked me just now on the subject of a letter which was before you from some horological journal?

Chairman.

16. From Mr. Wright?—Which suggests that the alteration should be an alteration of one hour, and should be a permanent alteration of one hour. I can hardly think that any reasonable man would advocate that; it does not seem to me to be reasonable. The sun rises in mid-winter somewhere about 10 minutes past 8. If the proposal of the Horological Institute were adopted, the sun would not rise until 10 minutes past 9 in mid-winter. It seems to me that it is sufficiently unpleasant for us to rise in the dark, and have breakfast very often in the dark, as we do now; and to think of putting that time on an hour, seems to me to be quite out of the bounds of common sense; but still there is a strong feeling for it.

17. The change need not apply during the winter months?—No, but the gentlemen who has written that letter seems to suggest that.

18. Can you tell us whether the suggestion that we should adopt the Mid-European time for six months of the year, commencing in March and ending in September, would seriously conflict with your own desire to save daylight?—It does to this extent: that in making any alteration with regard to the commencement of the hours of daylight, you must bear in mind the working population. Their lot is already sufficiently hard; they have to rise much earlier than most of us to go to their work; and I maintain, at least I feel it myself, that it is a distinct burden to have to rise in the dark to go to your work. The earlier you have to rise, the greater the burden is, if it is dark. If you put an hour's alteration on for six months in the year, that is to say, from the 1st of April, the sun rises on the 1st of April now at 5.37; it rose this year at 5.37; it would, therefore, not rise if you move it on an hour, till 6.37; and, I submit, that any arrangement that is made should provide for the rising of the sun at 6 a.m.; because a great number of men commence work at six, and a great many more commence at half-past six. In my own trade, the time now is 6.30—it used to be six; that is the earliest time. In winter, of course, it is later, but in summer they commence at 6.30. But there are people who commence at six; consequently, although they may have light to go to their work (there is a certain amount of twilight, of course, before the rising of the sun—dawn we call it—which affords them light to go to their work), I submit that any change that is made should provide for the rising of the sun at about six. Consequently, if you adopt the suggestion of Mid-European time, you ought not to commence the alteration until certainly the 12th or 19th of April. I am taking Sundays here. On the 12th of April the sun would rise at 6.14; on the 18th of April it would rise exactly at six. You would lose the benefit of the extra daylight during 18 days, probably, at the commencement; and similarly with 18 days at the end, because you would have to set the clocks back again; so that you would lose a little more than a month.

19. What have you to say about the difficulties that were very sorely felt with regard to International intercommunication?—I should deny that on the balance there is any difficulty; because, admitting difficulties to one set of individuals, there are advantages to other sets of individuals. The man who does business with New York will undoubtedly suffer disadvantage; on the other hand, the man who does business with Shanghai, Calcutta or Bombay, will have an advantage. Or, if you take the East, for Perth or Fremantle, for Sydney, of course, it would not make much difference; but all people dealing with the East will have an advantage; people dealing with the West will have a disadvantage; consequently, I put one against the other, and I say that there is no argument to be made from that.

20. Have you considered the difficulties that would confront railway people, in regard to the arrangement of their time tables?—I have considered it, and I am very glad to say that the

Chairman—continued.

Railway Companies are coming round to my view, as I will explain to you directly. You see, by my proposal, the present time tables will remain exactly as they are, with the exception of train services communicating with the Continent; that is where alone a difficulty will come; and that difficulty will only last until the Continental Railways, or the Continental Governments take a leaf out of our book, and themselves use as much of God's gift of light as we do. If they alter their times to correspond with ours, we shall be as we are; and I claim that if this scheme is enacted and is a success, the Continental nations, Germany at any rate, will have wit enough very quickly to follow suit, as will also America, which will get over the difficulty that you alleged just now with regard to transactions with the West. If, on the other hand, it is a failure, which I am absolutely certain from the letters I have had, and the notices that have appeared we need not fear; but supposing it be a failure, in six months it is put right. It does not last for ever; in six months we shall have seen the result, and if it is a failure, it will be at an end. If it is a success, certainly the other nations will follow, and if they follow, there is no inconvenience with the Continent.

Mr. *Pirie.*

21. You mean that the scheme can be tried tentatively ?—I do not say that, because if I said that, it would indicate that I had some doubt as to its success.

22. But for those who have doubts, you admit the possibility of a tentative trial ?—Perfectly, because of course I am strongly in favour of a six months arrangement. We all know that in one half of the year Nature gives us minimum of eight hours of light, and in the other half of the year she gives us 16 hours of light. Our arrangements are the same all the year round. It must be an uneconomical arrangement we have now.

Chairman.

23. Have you anything further to say as regards the general aspect ?—With regard to the clocks, if we may keep to that point—because there are a great many points made by the horological people—they ask for an hour's permanent alteration, and they also do that because they object to the continual alteration of clocks. I should like to refer to a lecture that was delivered at a meeting of the United Wards Club of the City of London, E. V. Huxtable, Esq., President, in the chair, by Mr. St. John Winne, of the Standard Time Company. In my pamphlet there appears a letter from Mr. Hope Jones, of another standardising company. Both these gentlemen advocate the electrical synchronisation of clocks, and this lecture was delivered by this gentleman in relation to an article which appeared in the *Times*, on January 8th, last headed "Lying clocks"; and this is what he says, "The opening words of the *Times* article emphasise a fact which does not appear to be common knowledge, that down to the present day no horologist has produced either a clock or watch, from the finest chronometer downwards, which is free from error and does not require more or less frequent correction."

Chairman—continued.

24. Does that article suggest the possibility of any automatic adjustment of the clocks ?—The value of this lecture is that the gentleman who delivered it probably had never heard of my proposal; at any rate I do not know him, I have not seen him, and I have not spoken to him; but if you read his lecture you will see that it is wonderful how his arguments tell in favour of my proposal; that is to say, with regard to the alteration of all the public clocks, because that is one of the mechanical difficulties to be overcome, so that they shall be in harmony, so that they shall synchronise, in fact. And Mr. Hope Jones, whom I venture to think you should see as a witness as well as this Standard Time Company's representative, will tell you that it is perfectly easy. This is Mr Hope Jones's letter: "It would be quite possible to arrange for the mere depression of a lever in a master clock twice a year. . . to let the master clock accomplish the 20 minutes per Sunday advance in April, and the 20 minutes per Sunday retardation in September quite automatically, and at trivial cost." You understand that the master clock controls all the other clocks. Mr. Hope Jones told me himself that he has 5,000 clocks under his charge, and that he could move them all on without anyone noticing it, if he wished, 20 minutes; and that is how he says the time is altered now on the great Atlantic liners like the "Mauretania" and "Lusitania"—that the whole of the clocks throughout these ships are now controlled from the captain's bridge by his system; and from what I read here in this lecture by Mr. Winne, that is also what the Standard Time Company do. The London County Council I may tell you, has already moved in the matter; in fact, the London County Council on February 13th, last addressed a letter to the Common Council of the City of London with reference to this matter. This is what they wrote: "With reference to the expediency of legislation being promoted to obtain authority to secure that public clocks shall be adjusted by synchronisation or otherwise, and asking for the views of the Corporation thereon; also inquiring what action the Corporation has taken under Section 65 of the London County Council (General Powers) Act, 1903, with regard to the provision and maintenance of public clocks." You see the objection has already been discussed as to the synchronising of clocks. If a clock is going to be moved two, three or five minutes, it can be just as well be moved 20 minutes. Mr. Winne says: "Synchronising on a small scale certainly adds a little to the cost of winding and maintaining clocks, but upon a large scale the addition would bear a very trifling ratio to the very large sum which is now spent without attaining the object aimed at." "The Glasgow Corporation in 1905 delegated to a Committee the work of inquiring into the best means of securing a reliable public time service. The most exhaustive investigations were made by the Committee, which visited Berlin, Antwerp, Brussels, St. Gillies, Paris, and London, inquiring into and reporting upon the systems in use in America, Bremen and Stettin. Finally, the Committee had no hesitation in expressing the opinion that Berlin and Antwerp possessed the most satisfactory and complete time services." "Germany, our great commercial

Chairman—continued.

commercial rival, has had municipal public clocks for many years past in every large town, Berlin having a particularly comprehensive system, every public clock being synchronised as a matter of course. The "Normal Zeit," or Standard Time Company of Berlin, was entrusted by the Municipality with the task of providing an adequate public time service in the city. In 1905 the total number of that company's clocks in Berlin exceeded 6,000, and now, I believe, number more than 8,000, and they have given every satisfaction."

25. Does that suggestion mean to indicate that a clock, say in this room, would be synchronised and adjusted by a master clock, say, two or three miles from here?—That is a suggestion to meet the horological people's difficulty about the moving on of the clocks.

26. But unless you can prove that a clock here could be adjusted by some other timepiece somewhere else, I do not see how you can get over the difficulty?—That is so; that is a fact, that it can be done. I will read you a passage here which explains how it is done. The lecture is entitled "The Time of a Great City: a plea for uniformity. The problem and the solution." As I say, the lecture was delivered at a meeting of the United Wards Club of the City of London, on the 4th March, 1908, and there was a subsequent discussion.

Mr. *Pirie.*

27. Will copies be handed in?—This is the only one I have here, but I shall be happy to furnish the Committee with copies.

Chairman.

28. You see the position. What we want to know is whether it would be possible to adjust the clocks in a house, or in any public place, automatically, so that it should not have to be done by anybody in the house itself, because they may forget. That, I understand, is the whole point of the lecture?—I am only dealing with public clocks now. I do not regard the difficulty of moving the ordinary domestic clocks as anything at all; but there may be some little difficulty with regard to the public clocks. It is clear that if you want a public clock moved on in the early hours of the morning, at whatever time you may decide it shall be done, at 2, 3, 4, 5 or 6 o'clock, it means a certain amount of labour; it is a small thing, but still it has to be done. But in view of the strong feeling that evidently exists—because the London County Council would not write to the Common Council of the City unless there was a feeling that something more should be done with regard to the City clocks than is being done, if the result of their decision be that the public clocks of London shall be electrically controlled, I submit that the difficulty of moving them on 20 minutes vanishes into thin air, because they will all be controlled by a master clock, at a certain station, wherever it may be, and the clocks will all move on by the movement of the master clock.

Mr. *Pearce.*

29. Is that what is done in Berlin?—Yes.

30. All the public clocks in Berlin are controlled in that way?—Yes

Mr. *Holt.*

31. It is purely a question of expense, is it not?—It is a very small expense. If you read the lecture you will see that the expense is comparatively trifling. The Post Office, as you know, sends the correct time to anybody who wants it if they will pay something like £15 a year. Mr. Wynne in his lecture refers to that, and says that it is an extravagant demand—that they can do it for very much less.

Chairman.

32. Do you suggest that it would be practicable in connection with clocks in a private house?—In my own office all my clocks are electrically controlled by a master clock in the office.

33. On the premises themselves?—Yes.

34. It could not be done by a master clock elsewhere?—That is not done in my case, but it could be done by a master clock elsewhere.

Mr. *Holt.*

35. Might I ask, while we are on this subject, whether you can tell us what the cost of electrically synchronising the public clocks in Berlin is?—I cannot tell you what the cost in Berlin is, but on the question of cost, I can give you some figures from this lecture. "The cost of Greenwich mean time signals and electrical synchronisation. From His Majesty's Post Office the public may obtain the hourly Greenwich mean time signal in London, and one or other of the two daily signals in the provinces, at a minimum charge of £15 per annum in London. . . The Post Office charges, in comparison with those of the company," (that means the Standard Time Company in London) "are prohibitive. With the exception of some large turret clocks, requiring to be wound more than once per week, the company's charge is little more than one-fifth of the Post Office minimum, and where more than one instrument is actuated in one building for one subscriber a reduction is made according to the number. A further important difference between the two services is that, in addition to connecting the subscriber's premises with the Company's overhead wires without cost to the subscriber, it supplies the necessary instruments, and attends to the winding and regulation of the synchronised clocks throughout the year without any further charge."

Chairman.

36. Is that in London?—Yes. "It is 30 years since the enterprise was started in London, and it seems that it was conceived at least 25 years before public opinion was able to grasp its utility. During this period (and this is one of the best of testimonies) the company has continued to supply the hourly Greenwich mean time signal" (this is very important) "to, with very few exceptions, all the chronometer and clock-makers, watchmakers and jewellers within the scope of its lines" (actually these horological people take their time from this Standard Time Company) "many of whom, by means of deflecting needles, bells or other indicators, show Greenwich mean time in their windows or shops. In addition to this

Chairman—continued.

this, the company has also continued to synchronise the clocks of the great stock and commercial exchanges, Bankers' Clearing House, banks, cable companies," &c.

Colonel *Philipps.*

37. I want to get this quite clear. Do you consider that it is necessary to have a synchronisation of clocks in connection with this Bill?—It is not necessary, but it would facilitate the alteration.

38. This synchronisation, you, no doubt, consider an expensive step to take?—Rather more expensive than the present cost of winding.

39. If we do not synchronise the clocks, do you consider that the principles of the Saving of Daylight Bill fall to the ground?—Absolutely no.

40. That is the whole point really. We are getting into the deep water of synchronising clocks, which is a very big question. As I understand, the Daylight Saving Bill before us is a Bill involving no cost either to the State or to the individual?—That is so.

41. And perhaps some great benefit which you are going to show us. But if you once touch the subject of synchronising, are you not touching upon a very big question?—I would not have brought it forward if it had not been that the Chairman requested me to deal with that letter from the Horological Institute. They object to my proposal, because they say: "Make one alteration once and for ever, and never touch our clocks again." And, in order to deal with that objection, I bring forward the extreme probability that before long there will be an electrical synchronisation of clocks.

Chairman.

I do not think it is necessary to go into that question much further. I do not quite agree with my honourable friend, because I think it is necessary to show the public that where large establishments are concerned it is practicable, if you wish to go to the expense.

Colonel *Philipps.*

42. Is it not a fact that on the Underground Railway the clocks are synchronised?—I believe they are.

43. At the present time, is there not at all the Underground Railway Stations a clock marked "Synchronised by electricity every hour"?—I believe it is so, but I could not say positively. We know, at all events, that a good many railway clocks are synchronised in that way. I say that where synchronisation exists, there is no difficulty in moving on the hands of a clock; and I say that synchronisation will exist much more largely in future than it does at the present time.

44. Then as regards Mr. Wright's letter, which has been put forward, he suggests first of all that we should adopt the Mid-European time for the whole year; that is one hour in advance of Greenwich or sun standard time?—Yes.

45. You do not think that proposal gives the benefits that your proposal does?—No.

46. Then his second proposal is that if that first proposal is not accepted we should adopt Mid-European time from the 31st of March to the

Colonel *Philipps*—continued.

30th of September. Do you think that is as good as your proposal?—I think it is a wise proposal, but not so wise as mine.

47. Have you prepared a table showing the difference between the *Horological Journal's* proposal, Mr. Wright's proposal, and your proposal?—No, but I will do so before the next meeting of the Committee.

48. I think it would be interesting and useful?—Certainly.

49. Between your proposal and Mr. Wright's second proposal there is not very much difference; it is only a matter of detail?—That is all.

50. Mr. Wright's second proposal is your Bill with modifications?—Yes.

Chairman.

51. You think, generally speaking, that the proposal of the Horological Society as regards the putting on of the clocks according to Mid-European time is not quite so practicable or so expedient as yours?—I do not, but I think that Mr. Wright, Mr. Chairman, should be asked to come and give his views.

52. Do you not consider that Mr. Wright's proposal has the signal merit that it prevents the necessity of having to tamper with clocks eight times during the year, as under your scheme?—Do you not appreciate the objection that I raised just now: that in mid-winter the sun would not rise until 10 minutes past 9? Do not you think that cuts away the ground entirely from under Mr. Wright's feet and the Horological Society's feet? Does anyone think it at all reasonable that we should so manipulate the clock that we should put up with more darkness in winter, than we have now in the early morning in winter?

Mr. *Holt.*

53. Not more darkness in the day?—No; no one can alter that.

54. We should have less darkness in the day?—That depends upon when your day begins.

55. But a great many people's day does not begin till 9 o'clock?—But the great majority of the people's day begins before 9 o'clock. The vast majority of working people have to go to work much earlier than 9 o'clock, and I think it is most unfair to them to suggest that daylight should not begin till somewhere about 9 o'clock in mid-winter. My view is that we would rather suffer deprivation of light at the end of the day in the winter and prefer it in the morning, if we are going to make an alteration.

Chairman.

56. How would the difficulty be met by having some sort of uniform alteration, say of 40 minutes?—In all that you are striving to go against nature. Nature has given you the difference, and you cannot help it. The earth at mid-winter is at one position on its journey, and at mid-summer another. If you go from London to New York, or from London to Australia, you will find the time is different; the hours of the day there are different from the hours of the day at the port you have last left, and

Chairman—continued.

and consequently you will arrange your life to fit the arrangements which Nature has provided in those ports for the light of the day. The earth is practically a ship going through a sea of space, and we leave one port in December and get to quite a different port in June, where the conditions are entirely different; but we adopt, at present, the same arrangement throughout the whole journey right round the ellipse; and I submit that that is clearly a mistake; it must be uneconomical, and it is a mistake to make any permanent arrangement, because no cast-iron arrangement can fit nature's arrangements, which are entirely different at one part of the year from what they are at another part.

Mr. *Pirie.*

57. I should like clearly to understand, if it was agreed to make a tentative experiment, and it was found to be a failure, in your opinion would the results be very detrimental to resuming the old arrangement; would there be very much dislocation caused?—If my scheme is adopted, we do resume the old arrangement at the end of September. We are at the end of September, where we shall be this September.

58. So that if it was decided to try it, as an experiment, the only thing practically that would have to be altered would be the Bill, you would have to make it apply for one year only?—Yes, but then you immediately impart an element of doubt, and you cannot expect the House of Commons, I should think, to justify a Bill at all with an element of doubt in it, I hope that this Committee will be unanimous, by the time we have finished, that it will be a good thing.

Mr. *Holt.*

59. I want to ask you a few questions. I am very sceptical indeed, I may tell you?—I am all the more pleased to reply.

60. I want to ask you first of all this question. There are certain hours of business, one may say, during which people spend their time in various activities and there are certain hours which are normally chosen for being in bed. Why do you think that people choose those particular hours. Your object is to change those hours?—It is.

61. Your proposal practically comes to this: supposing we call the ordinary commercial day from 10 o'clock till 5 o'clock—that is the ordinary commercial day in the summer months?—You might say from 9 to 6, I think.

62. Call it from 9 to 6 if you like, it is immaterial, what you really propose is to alter that to from 7.40 to 4.40?—No, I do not.

63. Excuse me, your proposal is exactly the same thing as if people agreed on the spot to open at 7.40 and close at 4.40?—I see what you mean, it is equivalent to that.

64. It is not using the same words, it is the same actual proposal?—It is equivalent to it.

65. The actual effect by true time would be the same thing?—But there is no such thing as true time, because what is true time at Greenwich will not be true time at Penzance.

66. If a person who went to work should, instead of commencing at 9 and leaving off at 6, work from 7.40 to 4.40, his position as regards true time will be precisely the same?—Yes.

Mr. *Holt*—continued.

67. That being so, if your proposal is a desirable one, why is it, do you suggest, that people do not voluntarily alter their hours, if the other hours are better?—Because the chains of custom and inclination are too strong for us.

68. You think it is impossible?—Absolutely.

69. Why do you think the custom grew up?—I will tell you why I think it grew up. I believe that up to the year 1540 there was no such thing as a clock which kept reasonably accurate time. Our forefathers did not go by clocks but by the sundial. There were no trains in those days. They regulated their day by the sun; they rose earlier and they retired earlier; if they took 8 hours' sleep they retired earlier. Even when clocks came into existence, for a great many years after that, still in country places their days were regulated by the sundial. The first clock was put up at Hampton Court in 1540, that is comparatively only a short time ago. Then about 100 years ago or more, railways came into existence and fixed time tables, and helped to fix us still more firmly in the system that applies to the winter half of the year the same time arrangement as applies for the summer half of the year, and I think it is probable that the coming into existence of railways has been a great factor in fixing our present habits. We have been compelled to fall in with the railway arrangements with regard to trains and so on.

70. Then railways really have been the principal factor in fixing these hours?—Yes.

71. By the time that railways first came into general use in this country, say 50 years ago?—100 years ago.

72. Railways?—Yes, surely more than 50. (*Chairman.*) Let us split the difference, say 75.

73. I said since they came into general use. The railway system has not been established for more than 50 years—50 or 60. At that time the ordinary commercial hours were earlier in the morning and later in the afternoon than they are at present?—You say so.

74. That is what I have always been told by my forebears—I think the Chairman will corroborate it—that business hours were rather earlier in the morning and later in the evening than they are now. (*Chairman.*) Do you mean the working time?

75. I mean that ordinary commercial work began rather earlier in the morning and stopped rather later in the evening?—They did not do so much in the time.

76. I did not say that they did?—In my own business we used to commence, when I first came into it, at 6 in the morning and leave off at 5.30; now we commence at 6.30 and leave off at 5.

77. Then it was found convenient to cut a little bit off at both ends, rather than cut a little bit off in the afternoon, which is really your suggestion?—I am not concerned with that; it does not affect me.

78. But I want to suggest to you that the present hours have been more or less consciously or unconsciously adopted because they were in practice the convenient hours?—If you will qualify that by saying that they were the convenient

Mr. *Holt*—continued.

venient hours during the winter months, I will agree—during the six months we call the winter months.

79. You think it was because they were the convenient hours in winter, and that it was inconvenient to have different hours in winter and summer?—Yes, because they got into the habit in the winter of rising at a certain hour, and we carried that habit on through the year. It is a question of habit.

80. You think it would be an advantage—you obviously do—to have more daylight on a summer's day? Assuming that 10 o'clock is the ordinary bed-time in summer, you think it will be an advantage to go to bed at 8.40 instead?—No one goes to bed at 8.40, and no one will go to bed at 8.40. It is no good talking about that. If you go to Berlin, for example, you do not go to the host of your hotel and speak of German tyranny because he sends you to bed at 9 o'clock London time. You go to bed at 10 o'clock Berlin time.

81. I want to talk about this by true time?—There is no such thing as true time.

82. Let me call it true time.

Chairman.

83. Mr. Holt asks you whether you think it advantageous for people generally to go to bed earlier?—It is manifestly advantageous that you should have hours of darkness in which to sleep, rather than hours of light. I submit that most people sitting in this room were roused, probably, at 4 or 5 o'clock because the sun was up, and they would not sleep an hour later.

Mr. *Holt.*

84. You are taking exception to my talking of true time, but I think it is a convenient expression?—Will you call it Greenwich time?

85. If you will allow me, I will call it true time for the moment—by which I mean "Greenwich time as used for the purposes of astronomy and navigation shall not be affected by this Act"?—Yes.

86. If a person's ordinary bed-time is 10 o'clock now, he would virtually, under this Act, be going to bed at 8.40 actual time?—What does he do when he goes to America?

87. Never mind about what happens in America, because true time is different there?—Then take Bombay, it comes to the same thing.

88. He would virtually be in the same position as if he resolved to go to bed at 8.40?—Yes, they do it in Penzance, you know; they go to bed half an hour before what you call true time.

89. Do not you think that, for instance, in summer there is such a thing as too much daylight?—Not in this country. I should like to have it. I have had too much daylight, but not in this country.

90. Where have you had too much daylight?—In India.

91. But the days are shorter?—Yes, but you get too much sunlight.

92. Is it not a common experience in the hot weather in summer that the hours of twilight and early dark are extremely agreeable and pleasant to people—amongst the most pleasant in the day?

Mr. *Holt*—continued.

Although, as you say, in India you can have too much hot weather in the summer, it is a very frequent experience with all of us that we find the hours from 8 to 11 at night particularly agreeable and fresh?—They are agreeable; but are they more agreeable than the early hours in the morning from 4 to 8?

93. If you take it earlier in the morning, then you are taking your whole 16 hours of activity in daylight?—Yes.

94. And under the sun?—Yes.

95. Is there not a real danger of the possibility that people cannot stand so much daylight?—I think that is absolutely disproved by the agricultural population. The agricultural population of this country is a very large one, and, as we are all aware, they spend the whole of their working day in the daylight; but we regard them generally as samples of health, not as evidences of ill-health. Our hospitals are not filled with agricultural people; it is the town dwellers who fill the hospitals.

Mr. *Pirie.*

96. And it is certainly disproved by the state of health of the inhabitants of Stockholm, Sweden and Norway?—Yes.

Mr. *Holt.*

97. I want to ask you about this question of business connections with foreign parts, which you have already alluded to; because we must not, I think, as practical people, count on other nations immediately adopting the same proposal; I do not think that is a reasonable calculation to make?—I think it is a reasonable calculation to make, unless you call the Americans foolish. If it is a wise transaction the Americans are sharp enough to adopt it. If it is a foolish transaction, we shall drop it at once.

98. I do not know enough of the American constitution; the whole thing might be unconstitutional. You cannot calculate upon the Americans doing it. You admit that it would be a great inconvenience for business people dealing with America, if Americans did not adopt the same plan?—Yes, I do.

99. Knowing the character of the transactions that go on between this country and America, the business hours between three and five in the afternoon are practically essential for American transactions?—They are chiefly speculation, are they not?

100. No, they are not speculation at all. On the contrary, with many of them it is exactly the reverse; it is in order to put the transaction through in one day and avoid the risk of the market, which is the exact opposite to speculation, that they have those two hours between three and five, in which they can buy and sell in New York?—They have.

101. If the Americans did not follow suit, you would admit that trades dealing with America would have to keep their offices open to the present time by true time?—I do not think so. I think they would agree to shut at the proper time, and do all their business the next day.

102. You think they would be prepared to take the risk of what might happen next day on

Mr. *Holt*—continued.

on the New York market?—I cannot answer that question.

Chairman.

103. It would be inconvenient?—Yes.

Mr. *Holt.*

104. I am well acquainted with a good many people dealing in cotton, and I cannot help thinking that they probably would object?—Quite so; but the Cotton Market and the American branch of the Stock Exchange do not control the whole of this country; they are only a fraction.

105. It is not only the Cotton Market but the Grain Market?—But still it is only a fraction of our commercial work. It is only a fraction of the total commercial population of this country.

Chairman.

106. I think you may take it that it would very considerably trench upon the margin of time that there is for carrying through operations between this country and the whole of the West?—Yes, but I said at the commencement that that is offset by the advantage to those who deal with the East.

Colonel *Philipps.*

107. Does it not also work in this way again: that America would have better advantages in dealing was us?—Yes.

108. It would give a longer period for Americans to receive our telegrams?—Yes.

Mr. *Holt.*

109. No. You said it would be set off by advantages to commerce dealing with the East?—Yes.

110. You mentioned among other places Shanghai and Fremantle. Can you tell me what is the difference of time between London and Shanghai?—I cannot for the moment. Take Bombay.

111. No, never mind Bombay; I want those particular places?—Then take Colombo or or Calcutta.

112. Well, take Bombay?—The difference at Bombay is five hours.

113. Then Bombay is in the opposite direction to New York?—Yes.

114. The Chairman will know better than I do, but I take it there are two hours in the early morning when you can deal with Bombay in the same day, and no doubt this would give them, instead of two hours, three hours and 20 minutes?—Yes.

115. Do you think that our commerical relations with Bombay are quite such important matters as our commercial relations with the American continent?—Seeing that Bombay and Calcutta are part of our own territory, I should think that our commerical relations with Bombay and Calcutta are most important—more important than those with America.

116. But the volume of trade with Bombay I do not think is anything like the volume of trade with America?—But you must not take the volume of trade with Bombay alone; you must take the volume of trade with the East.

Mr. *Holt*—continued.

117. You told me that you could not say what the difference of time was in Shanghai?—No, I do not remember it.

118. I wanted to suggest that an hour and 20 minutes did not affect the problem there at all, the difference in time is so great that you would not get an advantage out of Shanghai?—Probably not with Shanghai.

119. And I venture to suggest the same with regard to Australia?—It would be so with regard to Sydney, but not with regard to Fremantle. We should not gain much with Sydney—it is 10 hours.

120. I would rather like to suggest that the trade with Fremantle is not very important?—I agree.

121. I do not think that Bombay and Fremantle combined could be set off against the inconveniences arising with regard to the American trade. I suggest that to you?—There is Egypt, you know.

122. But there the difference of time is so little that it does not much matter. The only other question I want to ask you is about continental business. Unless the near Continent followed suit and altered their time, the railway connections, and consequently the mails, would be very much upset, would it not?—I do not think so.

123. Assuming that France or Germany or Holland, or all of them, decline to follow our example, I mean?—They would at first, of course.

124. Then if the French railway companies will not agree to alter their time tables, the English railway companies will have to alter the time tables of their trains in connection with the continental traffic?—Yes.

125. The result of that will be that the mail communication from the Continent will all arrive an hour and 20 minutes later by nominal time than it does now?—The mail communication will arrive an hour and 20 minutes later.

126. That might be rather inconvenient, might it not?—Of course there are inconveniences, I have admitted that there are. You can get nothing in this world without paying for it. The question is, is it worth the price?

127. It is our business, as a Committee investigating this matter, to try and find out what the inconveniences are?—Certainly.

128. I do not think you will take exception to my asking these questions, we have to weigh the thing in the balance?—Certainly.

Colonel *Philipps.*

129. There are two points arising on a question that Mr. Holt has raised, which I should like to ask you about. First, about the trade with the East. You do not come here as a commercial man to give us evidence on the trade of the country and how it is affected by this matter?—No.

130. But is it your contention that if your proposed scheme does interfere in any way with the trade with America, the greater advantage that we get for the great mass of the people, overrides the slight inconvenience to a very large body of trade, but still a small proportion of the people of the country?—That is so.

131. And if that comparatively small proportion of the people of the country find that there is any

Colonel *Philipps*—continued.

inconvenience do you see that there is any difficulty in their keeping their particular offices open for another hour and 20 minutes?—I should say not.

132. Your contention, I understand, is that the great benefit to the mass of the people will outweigh the slight inconvenience in these particular offices keeping open slightly later?—Yes, especially if the principals deal with their staff fairly and, inasmuch as they stay later, allow them to come later. They certainly would cease to get their leisure all at one end of the day, they would have a bit in the morning and a bit in the evening.

133. The second point is about the railways, which I regard as the most important point we have to consider. But, concerning the French traffic, were you correct in saying that Sir Charles Owens is in favour of this Bill?—Absolutely.

134. Is Sir Charles Owens the General Manager of the London and South Western Railway?—He is.

135. And are not the London and South Western Railway Company specially interested in cross-channel traffic?—Yes, and so are the London, Brighton and South Coast Company, and Lord Bessborough, their Chairman, is in favour of it.

136. Probably the London and South Western channel cross traffic is almost the most important traffic across the channel?—I should think the Brighton Company is as important.

137. I want to bring out advocates on the other side. Sir Charles Owens is well known as the General Manager, and the very efficient General Manager of the London and South Western Railway?—Yes, and Lord Bessborough is Chairman of the Brighton line, and he has written me a letter in support of the proposal.

Mr. *Pirie.*

138. On that point, is it not the case that on the frontiers between France and Spain, and between France and Germany, especially east and west, the trains when they arrive from the one take up the time of the other?—Yes.

Mr. *Holt.*

139. But in those cases the difference in time is the same all the year round?—Yes.

140. It is not a difference in time during certain months only?—No.

Mr. *Pearce.*

141. Is not the whole purpose of this Bill to bring the hours of work and pleasure in the summer time nearer to sunrise?—Yes.

142. Now with regard to the great bulk of the population, are about two-thirds of it in towns and one-third of it in the country?—Yes, I should think so; I do not know.

143. You may take that from me. Do the agricultural population in the country regulate their business by the sun?—Yes.

144. They do so now?—Yes, by the sun.

145. And seamen also regulate their business by daylight, do they not?—Yes.

146. So that this Bill affects mainly the population resident in the towns?—That is so.

147. One of the factors that you mentioned as

Mr. *Pearce*—continued.

fixing the custom now was the railways?—Yes.

148. Is not the other great factor in fixing the hours of work the establishment of factories and workshops within the last 100 years?—I should say so.

149. And that the beginning of work in winter time at six o'clock—the usual hour in factories—has run over into the summer?—Yes.

150. To the detriment of the general population?—That is so.

151. It is suggested that there is some hardship in making your change in the hours, by reason of the effect that it may have on the cotton and corn trade with America; but there is nothing proposed in the Bill to prevent all traders from keeping their hours such as they please, is there?—No.

152. As long as they like?—As long as they like.

153. And if in any particular occupation it is necessary to keep the present hours there is nothing to prevent it?—No.

154. I want to get these points clear. Speaking of the necessity for the Continent or any other country adopting our proposed rule, is it not a fact that this Bill only affects the United Kingdom?—The Bill only affects the United Kingdom and Ireland.

155. Will you agree with me that there is no need at all for any alteration abroad for them to accommodate themselves to us?—There is no necessity. It would facilitate and help.

156. But there is no necessity?—There is no necessity.

157. Is not the proportion of people who are affected by continental time very small in proportion to the whole population of Great Britain?—Extremely small.

158. The number of passengers who would have to accommodate themselves to it would be very small?—Extremely small.

159. Some questions have arisen already as to whether the change proposed, namely four changes of 20 minutes, is the best method. Will you explain to us why that is better than one change of an hour in the summer time?—I have printed the reasons; you will find them on page 10 of my pamphlet. I may say that Sir Robert Ball objected to my scheme on that ground at first—that he thought having several alterations was objectionable and that one would be better. He had two objections: first of all, as to alterations by fractions; and, secondly, as to the date when it should commence. He thought it would be better that it should commence at the spring solstice and end at the autumn solstice; that is to say, that it should begin on March 21st and end on September 21st. I wrote and explained to him why I thought that my scheme was better, and he wrote back to say that my reasons were entirely satisfactory on both points; and he will say that, of course, himself when he comes.

160. You have a diagram, I think, that shows in a red patch the amount of time that is gained for work by this proposal in summer?—Yes.

161. Will you kindly let the Committee have copies of that diagram?—Yes (*handing in the same*).

Mr. *Pearce*—continued.

162. Does it also show on the thin red line the hours gained for recreation in the afternoon?—Yes. This is not my dragram. My diagram you have already got. This is another diagram.

163. Do you know whose diagram it is?—I believe it is Mr. Wright's.

164. No, it is a diagram by Mr. Scantlebury?—Yes, it is.

165. Is Mr. Scantlebury in the employment of Messrs. Vickers, Son and Maxim, at Barrow-in-Furness?—Yes.

166. He is draughtsman there?—Yes.

Mr. *Hutton.*

167. I am afraid I am not *au fait* with this; there is only one question that occurs to me. Supposing you go from a British port, you may communicate with two foreign ports; one of them may have adopted this arrangement and the other may not?—You would not go to two foreign ports and one British port on the same day.

168. But you might have communications with them?—Yes.

169. A train goes down from London to Dover and runs in communication with boats both to France and Belgium?—Yes.

170. Supposing that France adopts the system and Belgium does not—and Grimsby the same thing?—Then Belgium would be like Stephenson's engine and the cow—so much the worse for Belgium. If France and England adopt it Belgium will find the arrangement very awkward.

171. It will be punishing our own people and our own railway companies?—If France and Belgium did not make their arrangements synchronise.

172. If one did and the other did not?—I venture to submit that that is not a reasonable suggestion to make. If France and England are in agreement about this matter, I cannot suppose that a small country like Belgium would stand out?

173. Germany might do so, and our boats go to Hamburg?—Germany might stand out. Everybody must form his own opinion of what is likely to take place if this matter turns out all right. If it is a success, other nations will not be so foolish as not to adopt it.

174. But they cannot adopt it all at once?—No, you may have inconvenience for 12 months; but surely we should not stop an advantage that is to last for all time because there is to be a certain amount of inconvenience for one twelvemonth.

175. It is not a question of inconvenience only, it is a question of cost as well?—Cost to whom?

176. To our railway companies and shipowners?—With regard to the railway companies, Sir Charles Owens' own words the other day were these. He said to the chief of his staff: "I think there is £2,000 a week in this for us."

Mr. *Holt.*

177 Is Sir Charles Owens going to appear as a witness?—He or his representative. It is perfectly clear that there is a great saving for the railway companies in the matter of artificial light, to start with; then I claim also that there is a certainty of increased traffic; people will travel further to go to their river or their game of golf or their game of tennis on Saturday afternoons.

Mr. *Holt*—continued.

Chairman.

178. Have you approached any other railway companies who are opposed to the scheme?—I had a letter this morning from Mr. Turnbull, the superintendent of the London and North Western line. I will read it to you. I have told you of Sir Charles Owens. Here is a letter from Mr. Robert Turnbull, superintendent of the North Western line. This is headed "London and North Western Railway. Office of Superintendent of the Line, Euston Station."

179. Was it a reply to a letter from you?—Yes.

180. To him?—Yes.

181. Is he General Manager?—He is Superintendent of the Line.

Mr. *Holt.*

182. He is certainly not General Manager?—It is in reply to a letter to the General Manager.

Chairman.

183. Your letter was addressed to the General Manager, I understand?—Yes. Mr. Turnbull writes: "Dear Sir, The General Manager has handed me your letter of May 1st, with regard to the Daylight Saving Bill. I shall be happy to give evidence before the Committee if you so desire"; and Mr. Grindley, who sends the letter says: "Dear Sir, In reply to your letter of the 5th instant"—we asked Mr. Grindley to give evidence, I understand, "as my chief, Mr. Robert Turnbull, is willing to give evidence in support of your Bill (you will receive a letter from him to-day to this effect), it will be unnecessary for me to do so. I am sure Mr. Turnbull will be an excellent witness for you—he is very much in favour of the Bill. Probably you will communicate with him direct." I may tell you that we know that one of the directors of the London and North Western Railway Company interviewed the staff at Euston, and he found that they were in favour of the Bill. They said that the slight difficulties to be overcome they could overcome, and they said that they would very much prefer to have their leisure in the light of the sun at the end of the day.

184. Can you tell the Committee what railway companies, if any, are opposed to the Bill?—Not one. Although I have asked in the newspapers for people to send me objections, not a single person or railway company has taken any notice of my request in the newspapers to that effect.

185. Do you know what is the view taken by the general managers of steamboat companies plying a channel service?—I have not approached the steamboat companies. I regard the railway companies as the determining factor in this problem. With regard to witnesses, I should like to read some proofs that I have to put before you, and you will see what gentlemen are willing to give evidence.

Chairman—continued.

186. Who are they?—The first is the Bishop of London.

187. Before we go to that point, I want to know whether you have approached any of the labour leaders or prominent managers of large shops?—Yes, I have got it all here.—I put the Bishop of London first, as his letter happened to be on the top. He says "If such a change could be made it would tend to the health and happiness of thousands of young people in my diocese, especially in enabling them to get an hour and more's fresh air and exercise before dark, after their business hours." That is signed by the Bishop of London. Then I give you a proof by Mr. Harry Thomas Holdron, director of a public company known as the Bon Marche, Brixton, employing in summer from 800 to 1,000 shop assistants.

188. That is very important?—He says: "The benefit of one hour and 20 minutes more daylight to these and the hundreds and thousands of shop hands throughout the country, would be inestimable, not only on account of the time it would place at their disposal for rational recreation, but from a health point of view as well, inasmuch as their work could be done without the aid (in many cases) of artificial light, thereby avoiding the heated and vitiated atmosphere so detrimental to health. It would, I am sure, be one of the greatest boons that could be conferred upon shop workers of all grades. I do not consider that there is any ground for the fear which has been expressed, that with the increase in daylight, during the summer evenings, shopkeepers will keep their shops open later and so frustrate the benefits of the proposed change, by causing the assistants to work longer hours. The tendency and desire of shop-keepers is rather to lessen than lengthen the working hours of the assistants." I have also a letter from Messrs. Morel Brothers, in Piccadilly.

Mr. *Pirie.*

189. That is in the pamphlet?—Yes.

Chairman.

190. If you will mention the names, and say whether they are in favour or against, I think that will be sufficient?—It is on the question of health, which is a very important point here, from Morel Brothers, Piccadilly, large Italian warehouseman. Then I have Colonel Edward Somerville. I put these before you in order that you may say who amongst those gentlemen you will call.

191. What the Committee would prefer would be to know the names of those who, according to your knowledge, are opposed to your scheme?—I have given you Sir Norman Lockyer and Sir David Gill.

192. Those are technical people. We want business and professional people?—I have not come across a single one, except Mr. Holt, up to the present time.

Mr. *Holt.*

193. I know a great many people who are opposed to it, but I am afraid it was not taken seriously?—I am attacked on every golf course, and in the train every morning, by people who say: "I do hope this will go through." One man did say it would be too much trouble to alter his watch 20 minutes.

Chairman.

194. I think that Lord Roberts, in blessing your scheme, said that he thought it was somewhat impracticable?—No, what he said was that the practical difficulties seemed to him almost insurmountable, but he wished me success. Here is the proof from Colonel Edward Somerville, Colonel commanding the 5th Battalion, King's Own Yorkshire Light Infantry. He says: "I am a solicitor in Doncaster, Yorkshire, of 28 years' standing, and senior member of the firm of Messrs. Baxter and Company. For the last 27 years I have been an officer in the local Volunteer Battalion, which has lately, under Mr. Haldane's scheme, been entitled the 5th Battalion King's Own Yorkshire Light Infantry, with companies at Doncaster, Pontefract, Goole, Normanton, and Castleford. I consider that the passing of the Bill would be of the greatest assistance to Mr. Haldane's Territorial scheme. All our drills are held after the men have finished work, and we generally fall in at 7.30 p.m. We have to march some distance to a field, where we have to put in one hour's drill at least. We rarely leave the field before 9.15, sometimes later, but by then it is twilight and even dark. It is impossible to have steady drill in the dark, and I am sure regular troops would never attempt it. Again, for musketry, the lengthening of the daylight would be most valuable. We have to go over 2½ miles to our range, and after work it is scarcely worth going down for half an hour's practice. An hour and a half would be a very different thing, and many more men would practise and so become better soldiers." Then the next is from Mr. Carl Armbruster, Bandmaster of the London County Council. He says, "I am musical adviser to the London County Council and have occupied that position for the past seven years. The London County Council engages about 90 bands each season to give performances in the various parks and open spaces of London. The number of those performances is between 1,200 and 1,300, and they are given upon about 60 band-stands. The bands play for three hours at each evening performance, starting at the commencement of the season, namely, in the middle of May, at 5 o'clock and finishing at 8. These times gradually lengthen out week by week until by midsummer-day the bands commence at 5.45 and continue until 8.45. The hours are, of course, regulated by the available daylight, as only upon half-a-dozen stands is it possible to have artificial light. After midsummer the time of commencing and finishing the performances gets earlier week by week, until by the end of the season, towards the latter end of August, the performances commence at 4.15 and finish at 7.15. Many of the performances, especially those at the beginning and end of the season, are to a very great extent wasted, because, for the reason above stated, they have to take place at such an early

Chairman—continued.

early hour of the evening, and in fact at some of the performances the audience consists mainly of women, children and cripples, the time of the band playing being such as to make it impossible for the working men to get to the band-stands. The Council spends £12,000 per annum on its band performances, which are presented to the public free. There is no question that they afford delight and recreation to many thousands, the Council's only regret being that it is not able to extend them. I am satisfied that if the Daylight Saving Bill becomes law, the result will be that the attendance of the public to hear the bands will be almost doubled, and thus more value be obtained for the money spent by the Council in providing the music; and while people are listening to music it keeps them from public houses and other similar places where they would otherwise spend their leisure hours." Then there is Mr. Basil Holmes, Secretary of the Metropolitan Public Gardens Association. He writes in favour of the Bill, and concludes by saying, "Such an increase of time available for recreation in the fresh air and sunlight cannot fail to be of the utmost value to the physique of the nation, and to the improvement of the mental and moral characteristics. The Association, therefore, has passed the following resolution in favour of the Daylight Saving Bill, as follows: "That this Association approves the principle of the Daylight Saving Bill and authorises the chairman of the meeting to sign the manifesto which it is proposed to publish in the Press." (Meeting 4th March, 1908), signed by Sir William Vincent, Bart., Vice-chairman. The Chairman of the Association, the Right Honourable the Earl of Meath, K.P., has written in favour of the Bill, and in support of the views of the Association as follows: 'Anyone who can bring more sunshine into the life of the average Briton will be a benefactor to his country, and although your scheme might be carried without legislative enactment were we not such slaves to custom, I fear that no common action is to be hoped for without the intervention of the Legislature. I thank you, therefore, for having had the courage to advocate so simple a proposal, and trust that before long your ideas may be the means of adding to the amount of sunshine enjoyed by Britons . . . . sunshine destroys germs, raises the vitality, and consequently the spirits. Future generations will, I believe, rise up and call you blessed.'"

195. As regards the Press, have you any definite expression of opinion from important newspapers?—Yes, I have hundreds of them. I did not bring the books down with me this morning, but I could have done so; there are actually hundreds.

Mr. *Pearce.*

196. Have you a list of all the journals that have made observations upon your scheme?—I have not made such a list, but it can be made.

197. Is there such a list?—Yes.

198. Can you put it in, distinguishing those that have approved and those that have opposed?—Yes.

Mr. *Holt.*

199. One question arises out of an answer that you gave to Mr. Pearce. He said that there was nothing to prevent particular trades from adhering to their present hours, by what I call true time, and you said that was so?—The question Mr. Pearce asked was whether there was anything in this Bill to prevent various trades from keeping any hours that they liked, not keeping their present hours.

200. Let me put it to you in this way: if by a general concensus of opinion the various trades decided to adhere to their present hours by true time, the whole object of the Bill would be defeated; there would be no object in it unless you are able to satisfy the Committee that all the traders and all the people in the country will adopt it. If they will stick to their present nominal hours and are not going to alter their nominal hours in consequence of this Bill, then the Bill is worse than useless?—Yes

Colonel *Philipps.*

201. In other words, the Bill must be backed by public opinion?—Absolutely, and it is backed by public opinion. I have it here.

202. The point, I think, that we want to bring out is the point about labour. I appreciate that it will benefit a certain class of labour which now has limited hours, such as clerks to bankers, solicitors and barristers, and all the men who have got fixed limited hours now; but have you considered how much it may affect those people who have not got limited hours and whose work may be increased owing to the day being longer?—Will you instance such a trade?

203. Shop assistants. We have a Bill before the House which may not go further this year, in which it has been brought out very strongly that there are very long hours of labour. Will not this Bill have a tendency to increase the hours of labour of those people?—No, on the contrary, it restricts them. Shop people do not keep their shops open, I may say, unless there are customers about to trade with them. When customers cease to come, whatever hour it may be, the traders will close their shops. If this Bill becomes law, there will be a vast increase in the number of those who spend their leisure out of doors in games and other physical exercises, and if they are engaged in such occupations they cannot be shopping; consequently the number of shopping people will be reduced, and therefore the disposition on the part of shopkeepers to keep open will also be reduced. At the present time they say that it is no good closing early, because there is no daylight if they do. But if the Bill passes the probabilities are, in my opinion, that the shops will close earlier and not later, because they will say: "We have really something that we can use now when we have got two or three hours' good daylight."

Mr. *Pearce.*

204. Is anybody in the banking world prepared to give evidence?—Yes. I have not asked Mr. Bevan yet, but I am sure that Mr. Higginson, the General Manager of the National Bank, would give evidence.

(*The Witness withdrew.*)

Thursday, 14th May, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Pirie.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. *Willett.*

At the last meeting, Sir, you asked me to prepare a list of the newspapers that had spoken about the proposal. I hand in a list which shows 139 papers in favour, 10 adverse, and 87 critical (*handing in the same*). You also asked me to prepare diagrams showing how the other diagram that I handed in would be varied if the alteration had been made for one hour instead of one hour and 20 minutes. I hand in those diagrams (*handing in the same*). You also asked me to hand in copies of the lecture from which I quoted, by Mr. Winne. I hand in those (*handing in the same*).

Mr. JOHN FRANCIS SYKES GOODAY called in; and Examined.

Chairman.

205. You are General Manager of the Great Eastern Railway?—I am.

206. Will you develop in your own way your views as regards the scheme of Mr. Willett?—I quite approve of the object which it is desired to attain by this Bill, viz., to gain more daylight; but I do not think the way it is proposed to attain it, by putting the clock forward 20 minutes on each four Sundays in April and back again 20 minutes on each of four Sundays in September, is practicable. I would far rather see England adopt Mid-European time, which the Committee is aware is an hour in advance of English time. When you have crossed the frontier into Germany you get into Mid-European time, which is an hour's difference.

207. When you say Mid-European time, to what countries do you allude as having adopted it?—It is a zone in Europe that has adopted an hour faster than Greenwich time; and then Eastern European time is an hour in advance of Mid-European time. Roughly speaking, Mid-European time extends, I think, from Cologne to Berlin, or a little beyond, I will not be sure whether it is Breslau—but it is Central European time.

208. Does it not go further south than Cologne?—Yes, it goes right away south.

209. Would it go so far as Buda Pesth?—I think Buda Pesth has Eastern European time. Vienna would be Mid-European time, I fancy. But, if the Committee desire it, I can give the exact limits very easily.

Mr. *Willett.*

I have sent for the Continental Bradshaw, which will show it.

Mr. *Pearce.*

Whitaker's Almanack has got it all in.

Chairman.

210. Perhaps I might as well ask you how Holland time affects either Mid-European or Eastern European time?—For the railways, Holland has Greenwich time, but for the local time Holland is 20 minutes in advance of Greenwich time, and it is most inconvenient. When you are at a hotel there, you look at the clock and think that is the time, and when you get to the station you find that you are 20 minutes before your time at the station.

211. How long have they had that extraordinary time?—It must be 12 or 14 years, I should think.

212. In consequence of what?—Before Mid-European time was established, you used, as you travelled through the Continent, to have different time at every station, or practically so. Cologne would be 19 minutes in front of Greenwich, and Berlin would be 27 minutes in front of Greenwich, and so forth. But all that was altered; a line was drawn—the same as is done in America, at Pittsburg, I believe, where you change on the frontier exactly an hour. You arrive at the German frontier at 11, and when you get there it is 12 by German time.

Chairman—continued.

213. Do you know what reason actuated Holland in refusing to adopt Greenwich time? You say it is 20 minutes behind Greenwich time?—It was their local time, and I believe they thought that if they adopted Greenwich time they would lose a certain amount of daylight. I may say that I know that a good many Dutch people are strongly in favour of their adopting the Mid-European time, but they do not like to Germanise themselves more than they can help.

Mr. *Holt.*

214. Do they do the same thing in Belgium?—Belgium has Greenwich time for railways and for private use.

Chairman.

214a. Will you continue, please?—I fear that if the clocks were put forwards and backwards as suggested by Mr. Willett, very great confusion would be entailed. Speaking as a railway man, I may say that every driver, guard and signalman would have to alter his clock or watch, and if he omitted to do so (and I should not like to trust it altogether to our men to do it), we might have a very serious state of matters; not only might it be dangerous, but there might be an accident. Then, again, if the clocks were not altered at the men's homes, they would come on duty late. But the principal difficulty, so far as the Great Eastern Railway is concerned, would be as regards the train services in connection with the Continent. If you take our line as an illustration, at present a train leaves Liverpool Street at 8.30, and the steamer running in connection with it arrives at the Hook of Holland at 5 o'clock. If the clocks were altered as suggested, the steamer would arrive at 4.40, 4.20, 4, and 3.40, as the case might be, as each 20 minutes was put on, whereas the Dutch train onwards would start after 5 o'clock—10 minutes after 5, I think, is the time it is due to start, practically 5 o'clock—and the passengers in the extreme case would have to wait an hour and 20 minutes, which, particularly at 5 o'clock in the morning, would not be very pleasant for them. It may be urged that the Great Eastern Company could start later from England; but there are some statements that I should like to put before the Committee, showing what our connections with the North are (*handing in the same*). There is a train which runs to Parkeston in connection with the arrival and departure of steamers, and it connects at all those various towns which the Committee will see in the list; and these trains with which it connects at Rugby, York or Peterborough, are, in many instances trains from the North to London; and obviously the other railway companies would not alter those trains if we altered our train; it would be impossible for them to do that. Then in the other direction a Dutch train arrives at the Hook of Holland to connect with the boat leaving at 11.20. I do not think the continental companies would alter the times of their trains to suit the new times; so that we should have to show that the steamer started at 11.40, 12, 12.20 and 12.40. The arrival at Parkeston would be proportionately later, and the train, instead of leaving at 6.30 and arriving at 8 a.m., as at present, would be booked,

Chairman—continued.

in the extreme case, at 7.50, and arrive at Liverpool Street at 9.20, and that hour is the busiest. In order that the Committee may somewhat appreciate what it means, I would like to hand in a statement showing the arrivals of our morning trains at different dates. This is from a return made to me every morning, to show that our punctuality is. You will see the number of trains and the hours of their arrival, and when they are due to arrive.

215. You consider that, according to the scheme proposed by Mr. Willett, it would be practically impossible for you to cope with the traffic?—I think so; it would cause an enormous amount of confusion and trouble. You will appreciate that the continental train cannot always run exactly to time, and if it is running at 9 o'clock, when the most important business trains are coming in, if it is behind time it would throw a number of other trains out.

216. But your objections would be met, would they not, if continental nations adopted the same scheme?—Not to alter it as often as that. My objections would be met if the clocks were put forward an hour once and for all, and not altered forwards and backwards.

217. You do not see any objection to the adoption of that course as regards railway traffic and the corresponding boat traffic?—No.

218. And you see your way to recommend the adoption of that course?—I think so. Of course I only speak so far as railways are concerned; there may be other trades that have objections to the adoption of that course, but so far as railway traffic is concerned there would be no objection to it.

219. May I ask if you are authorised to speak for the Board of Directors?—Yes.

220. Do you adopt the electrical synchronisation of time at any of your stations?—We have the time sent round every morning by electricity at 10 o'clock to each station.

221. Where is it sent from; where is the master clock?—At Liverpool Street.

222. To all your stations?—Yes, the time is not sent on to the clock, the time is sent to the station.

223. There is no electrical connection?—No, it is the stationmaster's duty, when he receives it, to see that his clock is right.

224. Have you anything else to say as regards your main evidence?—No, I do not think so.

Mr. *Pirie.*

225. Would your objections to the suggested alterations of the time be, to a large extent, obviated by the fact that the alterations would take place on Sundays?—I do not think they would.

226. If the scheme were found in this country, after a year's trial, so enormously beneficial as the promoters of the scheme expect it to be, from the public point of view, do not you think it likely that other nations would probably adopt the scheme also?—I do not think that any nation would adopt this 20 minutes shifting.

227. I was not meaning the 20 minutes simply, but the idea of two alterations in the year?—Very likely. I should prefer not to have any alterations

Mr. *Pirie*—continued.

alterations, but to adopt it once for good and for all.

228. Do you see no difficulties in the way, or no objections to the alteration that you propose in winter time?—Of course there would be some objection in winter; it would not be so agreeable, but then I think that the balance of advantage would be not to have an alteration, and put up with the disadvantages of being earlier in winter. I think one outweighs the other.

229. But your scheme would cause very serious disadvantage in winter?—I do not think it would be very serious. It is not what one would like to adopt, no doubt.

Mr. *Holt.*

230. You have been quite clear about the 20 minutes proposal, but you are evidently rather in favour of starting an hour earlier. What is the advantage do you think in that?—The sun rises and it is broad daylight while we are lying in bed, and I would rather have that daylight utilised in the evening for the purposes of pleasure or recreation, or whatever it may be and go to bed earlier, when it is dark.

231. That is what I call a personal reason, but as a railway manager do you think that there would be advantages to the railway companies?—Yes, I think we should burn less gas and get rather more work out of our men. I think also that it might induce people to travel rather more; they would have more leisure in the evening.

232. If you were to alter the whole time by an hour all the year round, that would, of course, simply come to the same thing as if people generally agreed to make their habits of life an hour earlier?—I quite agree with that; if you could induce people to make their habits of life earlier, then you need not alter your clocks.

233. Then in fact it would be a much better thing to induce people to alter their habits than to alter the clock?—Yes, if you could induce them to do so.

234. And assuming that by law you made the bank hours an hour earlier every day, that would have the same effect?—To a certain extent, yes. The bank is not everything, of course.

235. But it is, of course, a determining factor?—Yes.

236. Altering the bank hours gave us the holiday at any rate?—Yes.

237. With regard to the continental service, you carry a very large amount of mails by your railway, do you not?—We carry some mails.

238. Almost, I suppose, the larger part of the mails?—No, we carry part of the Dutch mails. We do not carry the German mails.

239. Do they come by Queenborough?—Some do, some come by Ostend.

240. But anything that applies to your company in this respect, would apply equally to the South Eastern and Chatham Company, would it not?—I would rather not answer for them. I believe you have a witness from the London and South Western Company to follow me, but they have not a train from the North running in connection.

Mr. *Holt*—continued.

You will observe the number of connections that we have with this northern train.

241. I am quite familiar with it. I often travel by it?—They have not any train of that sort, they have to travel from London, and a man has to see what time he arrives in London, to catch the train on.

242. If this project was carried out without the continental railways making any alteration in their times at all on their systems, the effect would be that the mails would arrive, I think, in summer an hour and 20 minutes later than at present?—Yes.

243. Do you know at what time they are delivered?—Our mails are delivered between 9 and 10 o'clock, not by the first delivery.

244. This would mean delivery somewhere in the neighbourhood of noon?—Yes.

245. And in the northern towns, I think I am right in saying that, your mails are delivered about half past 4?—We do not carry any mails to the North.

246. The continental mails, I mean?—I do not know what time they leave.

247. If I am right in saying that they are delivered about 4.30 at present, that means that they would be delivered at 6 o'clock?—Yes, that is so.

Mr. *Pearce.*

248. What is the proportion of continental passenger traffic, as distinguished from inland, in your company?—I should say that the number of people travelling to and from the Continent by all routes in the year is about a million and a quarter to a million and a half.

249. And the total number of passengers that you carry?—I do not mean by our route, I am taking all the routes for that.

250. All routes throughout the Kingdom?—Yes, for the Continent.

251. The number of people travelling on the Continent is about a million and a half?—Yes, I will not be positive, but that is about it.

252. As a mere question personally, can you give it me on your system, as between inland and continental traffic?—It would not be 1 per cent., I should think.

253. I may take it at not more than 1 per cent. of continental traffic as compared with the rest of your passenger traffic?—Yes.

254. Do you think that the other railway companies are of a similar proportion?—I would rather they answered for it. I should think the South Eastern Company would have more.

255. Continental traffic?—Yes.

256. Naturally, but that is about it?—Yes, in our case.

257. With reference to putting the time on an hour for the whole year and adopting really Mid-European time, you recognise that the daylight here varies much more than it does in more southern latitudes?—I suppose it would.

258. That our range is from 16 hours daylight in the height of summer to 8 hours daylight in the depth of winter?—I have not calculated it.

259. That is about it?—I take it from you.

260. Thereabouts?—Yes.

Mr. *Pearce*—continued.

261. I gather that your sympathy is with the effort to utilise the daylight in the summer?—Yes.

262. And for that sake you would be willing to incur the disadvantages, such as they are, of the hour earlier time in the winter?—I think, from a railway point of view, I would.

263. I gather from your *precis* that you think that a single alteration once for all is the best plan?—Yes, I do.

264. But you do not see so much objection to an alteration once a year forwards, and once a year backwards?—Not so much objection to that as I see to these continual alterations.

265. The 20 minutes on the Sundays?—Yes, I think that is a very objectionable idea.

266. Is it a fact that early on Sunday is the time at which there is least traffic?—Yes.

267. If you had to choose a time to make the alteration at all, you would choose early on Sunday morning?—Yes, I should.

268. Does the month make a difference?—I do not think the month makes much difference.

269. While you are here could you tell me, supposing that you made the alteration in the month of April, whether it would be wise to avoid Easter time or not with the holiday traffic?—There is not very much holiday traffic early on Sunday morning.

270. You think it would not matter?—I would rather that it did not take place at Easter time, I think, but it would not matter very materially. I have not considered that point.

271. Then is September the best month for the change if we revert to the old time for the winter?—I think it would not matter very much whether it was September or October. I should like it to coincide with the summer services more particularly.

272. That would be towards the end of September?—Yes.

273. You think then that early in April and towards the end of September would be the best times for an hour change?—If you altered it, perhaps, yes.

274. If it were altered in September it would be merely coming back to your present system?—Yes.

275. That is all?—That is all.

276. And all your experience in the regulation of traffic that you now have throughout the year, would be available for the six months from September to the following April?—Yes, but I do not apprehend that when once the hour was altered and all the clocks altered and so on, there would be much difficulty about it, except as regards the continental traffic.

277. You think, whether you reverted in the winter time to the present practice or not, it would not make any serious difference to your inland traffic?—No.

278. And what we have to weigh carefully of course, is the continental traffic, which is about 1 per cent. of the total?—Yes, in our case. I do not know that it is 1 per cent. of the total traffic of England; I doubt whether it is.

279. I am speaking, of course, of passenger traffic?—Yes. I am speaking of our Great Eastern traffic; because I cannot say what percentage of the North Western traffic, for instance, is continental; I have no notion whatever, and I do not suppose they could tell you, because they book most of their continental passengers, I presume, to London.

Mr. *Pearce*—continued.

280. We should like as exact information, of course, as we can get, but if we cannot have it we are content with what you can give us?—I have no doubt that other general managers would be able to speak for their own lines. I do not know who is coming.

281. Can you give me the proportion of tonnage that is dealt with on your lines, or generally in the Kingdom, as between continental and home trade?—No, I could not do that, but of course it is relatively small.

282. The continental tonnage is relatively small?—Yes, compared with the home tonnage, certainly.

Mr. *Pirie.*

283. It is comparatively insignificant?—Yes, relatively small.

Mr. *Pearce.*

284. I suppose the home trade on the railways is known, is it not; do you keep any statistics of it?—Yes, I could have told you, if I had thought that you would have asked the question, exactly what tonnage we carry, home and continental. There would be no difficulty in giving that information.

Chairman.

285. Perhaps you will kindly send it in?—Yes, of course, I will send it in for my own line; I should not like to speak for other lines.

Mr. *Pearce.*

286. But that is all I want, and I think all that would be useful is the tonnage. That would be a proper comparison?—Yes.

287. Is there any kind of traffic of a very important sort that cannot be measured by tonnage?—No, I think we could give you the tonnage. Almost everything is carried by the ton, except bullion and things like that, which are not of importance.

288. In speaking about the railway servants, the railway men, one recognises, of course, that there is a difficulty there; but you have that difficulty now if they are late on time. If any railway man's watch is wrong and he is late on time he suffers?—Yes; but it is incumbent upon him to alter his watch.

289. It would be part of his duty, probably, to see that his watch is right?—Yes, to see that his watch is right. It is like winding his watch up at night; he might sometimes forget it.

Chairman.

290. It would increase his responsibilities?—Yes.

Mr. *Pearce.*

291. One must agree that the more often that is done the worse it would be?—Precisely.

292. But, so far as the mere framing of time tables is concerned, I do not notice that you make any difficulty of that at all?—No, not the local

Mr. *Pearce*—continued.

time tables, because they would stand as they did; only, if a train was timed to start at 12, it would still remain in the book to start at 12, but the watch would be put backward or forward, and therefore no alteration would be required in the local time table.

293. It occurs to me that if the alteration were made throughout the year (there is nothing, of course, compulsory in your proposal anywhere), there would be no reason in particular why the railway companies should not make all their time tables an hour later, and so keep their present practice intact and make every train conform to the nominal time?—I do not quite follow you.

294. I do not know that it matters very much. I am thinking that the mere change in the name of the hour, calling 9 o'clock 10 o'clock, would be of no consequence at all?—Not at all.

295. If you run the 9 o'clock train at 10 o'clock?—Wait a moment. You mean that we should have to alter the train without altering the hour?

296. The proposal is that, by making 9 o'clock 10 o'clock, all your trains which are now running at 10 o'clock would be running by the new 10 o'clock, an hour earlier?—Yes, or the trains which are now running at 9 o'clock would really be running at 8 o'clock, which would become 9 o'clock.

297. That is so; they would be running at the same instant of time in point of duration of the day, but by the new named hour?—Yes.

298. And that is all?—Yes.

299. Then that would not dislocate your time table at all?—Not at all.

300. Or the arrangements between each of the trains all through the day, except that they would begin an hour earlier?—That is all; as long as the hours were altered a train, as you rightly say, would be running at 9 o'clock, although, as a matter of fact, it would be the old 10 o'clock.

Mr. *Holt.*

301. Surely that would be the old 8 o'clock?—No; we were talking about going back again, I thought.

Mr. *Pearce.*

302. I was speaking of that. In case of a change once for all, there would be only one re-arrangement of your train service?—It would be so.

303. But in the case of a change every half-year (I am speaking now of a single change) there would be always a change in closing up the train service in April?—Yes.

304. And opening it in September?—Yes; but you would not alter your local time book. Whether it was later or earlier you would still be running at 9 by the clock.

305. The new time in the six months in the summer and the old time in the six months in the winter?—Yes, precisely.

306. Having regard to the great difference between our winter daylight and our summer daylight, are you agreeable to the notion that that kind of change would be more advantageous to the general population?—I must say that, personally, I am in favour of adopting Mid-European time altogether, and not having even two changes in the year. I think there would be a great deal of confusion and trouble in that.

Mr. *Pearce*—continued.

307. Now with regard to the continental train service, which is a matter of considerable importance, of course, what does it matter what the time tables are on the other side?—When you run your trains from Harwich to various ports, what inconvenience does anybody feel now because they arrive at Mid-European time or Eastern European time?—None; because we can fit it in if we know what it is. There is no change. For instance, for the trains, say, on from Holland to Germany, the time tables are made in this way. The time that a train arrives by West European or Greenwich time is 11 o'clock; but the time on the other side of the frontier is 12; and therefore the train starts at 12.10, and everybody knows it, and it is so set down in the time book.

308. Do you run your boats for different parts of the Continent at different hours?—We run our principal services to the Hook of Holland and Antwerp.

309. I thought you ran boats to Norway and Denmark too?—There is a service of boats to Denmark, but it is a 36 hours service, and they do not run to catch a train the same as we do at the Hook of Holland; there are not through services in connection with them. They catch the train to Copenhagen and have an ample margin.

310. Is the continental time the dominating factor in regulating your continental trains?—It is not the dominating factor, any more than the English time is the dominating factor, but the time table has to be arranged taking both into consideration.

311. So that all these trains, of which you have given us a list here (and there are a good many I see) via Peterborough, coming all the way from Glasgow or Sheffield or Leeds, under the proposals that we are making, assuming that there was only one hour's change in the summer, would run still at the times set down here; or would you alter them?—If you did not alter them it would mean, as I say, the passengers waiting at the continental port or missing their connections coming from the continental port.

312. But in respect of these through trains, which I see run rather early in some places, under the new time table in the summer time they would run nominally an hour later than they do?—Yes.

313. You would have to alter your time tables for that?—I do not think we could get over it by altering them, because you see these trains with which we connect are the main line trains of the Great Northern, the London and North Western or the Midland, as the case may be.

314. Arranged with reference to inland traffic?—Yes, precisely.

315. Have you thought at all about the difference that this scheme would make to the consumption of artificial light?—There is no doubt that there would be a saving, but it is impossible to put a figure on it. I am not prepared to say what it would be.

316. But

Mr. *Pearce*—continued.

316. But there would be a saving?—Yes.

317. And the whole saving would be obtained if you only had the summer alteration?—Yes.

Chairman.

318. Would not the saving be very appreciable, even in winter, if you knocked off work an hour earlier?—Not so appreciable, I think; there would be something. I have not calculated it exactly, but it occurs to me that in the dead of winter there would not be much saving, but in the beginning and end of winter there would.

319. There would not be any loss?—No.

Mr. *Holt.*

320. I rather gathered from what you said that one of the advantages that you would expect to get from the adoption of this change is that your traffic would go on longer at night; more people would travel?—Yes, and they would begin earlier in the morning too.

321. Let us assume that your last train at night from some place starts at 9 o'clock by present time; it would really start at 8 if the hour was altered?—Yes.

322. What you are looking forward to is the fact that the new train will start at 9 o'clock by present time; that people will stay in the country an hour longer and traffic will go on an hour longer?—What I was thinking of was this. Take people in the City, where now the offices close at 6 o'clock, and they would close at 5. It will give the clerk an hour more to go out and amuse himself at golfing or cricketing.

323. And he would go and do these things, whereas at present he does not go?—Yes.

324. And you would have the satisfaction of bringing him back; you would expect to run an additional train later on in the day?—If there was traffic for it.

325. Otherwise you would get no advantage?—By getting away earlier, you see, he might come by an existing train, because we have trains running after dark now, and we should still have some trains, even if the hour was altered, running after dark.

326. You would not expect that it would involve an extra train service?—No; I think our trains are late enough. In some cases we run an all-night service, and there it would certainly not involve an extra train.

327. As you say in your *precis*, the London train from Parkeston leaves at 6.30 and arrives at 8 o'clock?—That is so.

328. And in the extreme case it would have to leave at 7.50 and arrive at 9.20?—Yes.

329. And you could not do that, I imagine, without altering the whole of your time tables on that part of your service?—It would require a great deal of alteration, but you will see from that statement how thick the traffic is. I think there are 81 trains in and out of Liverpool Street between 9 and 10 o'clock.

330. And if this alteration took place twice a year, it would mean that practically twice a year your time tables would have to be completely altered?—Yes.

331. Which would be very inconvenient for the people regularly going in and out of town?—Yes, you see a continental train running at that time is very inconvenient, because you cannot ensure the same punctuality with a train that runs in connection with a boat, with the chance of fog or bad weather at sea; you cannot possibly do it.

Mr. *Holt*—continued.

Chairman.

332. But, going back to the alteration of one hour for good and all, may we take it that your view is that in regard to the three or four months no changes will take place in spite of the alteration in the hour—that people will not get up at 4 o'clock in the morning?—I should think that if the hour was altered all through the year, workshops and offices would open, and banks would open and close at the same hours as now.

333. So that we may summarise your evidence as being opposed to the piecemeal alteration proposed by Mr. Willett?—Yes.

334. But on the other hand, you see every possible advantage in changing the time to mid-European time?—I will not say every possible advantage. I think that the balance of advantage is in favour of it.

335. You would rather that it was done than not?—Yes.

336. And you say that is the view that your Board takes on the subject?—Yes.

337. Are you still in favour of that even if foreign nations did not come into line with us?—I fancy that they would, you know.

338. But if they did not, you would still be in favour of the change?—It requires some thinking out. I should want to think of it before giving a definite opinion. I rather fancy that I should.

339. But you have not quite considered the matter in all its bearings?—No.

340. So that on the whole your view is that an alteration to Mid-European time would be generally advisable in the interests, at any rate, of your own railway?—Yes, of the railways.

Mr. *Pearce.*

341. Let me just supplement that. I think that is rather an important point. I gathered that, whether the change is made or not, there would be no extra train service?—I do not think there would.

Chairman.

342. Not even in the summer months?—I do not think that an extra train service would be necessary. I think the trains would fill better, perhaps.

343. But, for instance, there would be more people playing golf if they had an hour earlier in the afternoon?—I think we could accommodate them with our present service.

344. Do not you think it would entail a fast service of trains?—No. As I was saying before, where we run an all-night service on certain parts of our line we would not want to put on more trains.

Mr. *Richards.*

345. Is it not a fact that the dominating factor of continental trains is the arrival of the British boats at their particular points? Are not those main

Mr. *Richards*—continued.

main line trains run especially to meet these boats ?—Yes.

346. Therefore, would it not be profitable for them on the other side to endeavour to meet our boats ?—I do not think they could do that. The continental trains you see are settled at the Time Table Conference, where the representatives of all European companies meet, from St. Petersburg on the east and Paris on the west to Stockholm and Rome, and all the trains have to be connected, no doubt, with the boats. But I would not say that that is the dominating factor. They all have to be fitted in. For instance, a train comes down say, from Hamburg through Cologne, to Munich. We should get the connection with that train for the Hook of Holland at Cologne, and it would be fitted in.

347. I am connected with the fashion trade, and I find we have to make provision for the fashions. I suppose if the fashion was to alter the clock during certain times of the year, the railway companies would undoubtedly do their best to meet the requirements of the travelling public ?—The continental railways are State railways, you must remember, and are not quite so much interested in the public convenience as are privately owned railways.

348. I am afraid I differ from you there ?—That is my own experience, at all events, and I was for 20 years a continental railway manager.

Mr. *Pirie.*

348A. Would not this inconvenience which you suggest necessarily only exist until the first subsequent meeting of these inter-continental managers took place, who would naturally then make their arrangements in conformity with the accepted times of the nations ?—No. The only way in which they could do it would be to alter their times as suggested, by the 20 minutes alteration. They would have to alter their clocks in the same way ; and my belief is that they would not do so. I do not know ; the Germans might, but I do not believe they would.

349. I would sooner look at this question from the point of view of the two alterations a year, one in the winter and one in the summer. If that were so, would it not be the case naturally that the inconvenience that you lay so much stress on, which naturally would exist to start with, would disappear after the first meeting of the representatives of the European railways ?—I do not think so. If the time were altered definitely, an hour once and for all, I believe it would ; but if you altered it forward and backward twice in the year, I do not believe that the continental nations would fall in with those alterations. That is my opinion. I cannot say, of course, what they would do.

350. On the supposition that this one hour

Mr. *Pirie*—continued.

alteration was adopted, would it dislocate very much the railway service on the Sunday mornings, and how would you propose to deal with the question of trains that might be in transit during that time ?—It would dislocate those, of course, and that would be an inconvenience that would have to be dealt with. The trains would either have to be started an hour earlier or they would have to be booked in an hour earlier. That is why I am against any change twice a year.

Mr. *Holt.*

351. I think I am right in saying that on the continental railways, compared with English railways, there is a much greater proportion of single lines, even on important railways. For instance, the line from Florence to Rome is a single line ?—Yes.

352. I imagine that an alteration of the time table on a single line is a much more serious thing than an alteration of the time table on a double line ?—Certainly.

353. And that would make it much more difficult for them, with many of their important trains running on single lines, than for you, perhaps ?—With regard to that, I was for 20 years a continental traffic manager, attending all these conferences with the various companies, and from what I know of them I feel I may say confidently that they would not alter their times backwards and forwards to oblige us.

Mr. *Pearce.*

354. But apropos of that, if we took their time table for the summer, which is the suggestion, or at least half of the suggestion, even on a single line they would not have to alter their time service in any way, would they. If we took the Mid-European time for the summer, that would not entail any alteration in any of their time tables anywhere ?—No ; we should have to arrive an hour earlier. Instead of booking the Dutch trains at present as they do to arrive at the frontier at 11 o'clock, Dutch time, and go on to 12 o'clock, the Dutchman and we would have to alter it to an hour later and make it arrive at the frontier at 12 o'clock.

355. It is very fortunate that we have your experience as a foreign railway manager. Do you think that the proportion of 1 per cent. of our traffic that touches, perhaps, a single line on the Continent somewhere, would be a serious matter ?—Only serious to the people travelling. The proportion of English traffic would be so small that I am satisfied that they would not dislocate their whole system.

356. It might amount to a few plum puddings at Christmas-time ?

(*The Witness withdrew.*)

Mr. JOHN HERBERT VICKERY called in ; and Examined.

Chairman.

358. You are assistant to the General Manager of the London and South Western Railway ?—That is so.

Chairman—continued.

359. Do you come here as representing your Company ?—I come here at the request of the General Manager, Sir Charles Owens, who was asked

Chairman—continued.

asked to give evidence and deputed me to do so.

360. How long have you occupied your present position?—Nine years.

361. And you were previously connected with the Traffic Department?—Exactly, in various positions.

362. Part of the time as Superintendent of the Metropolitan district?—Yes.

363. And as Assistant Superintendent of the Line?—Yes.

364. Have you considered Mr. Willett's scheme in detail?—Yes.

365. What are your views on the main aspects of the question?—I think that very great public advantages would result, and I cannot see that there would be any great difficulties from a railway point of view.

366. That is in accordance with the scheme as propounded by Mr. Willett of a piecemeal alteration of the time?—Exactly.

367. You see no objection as regards dislocation and disturbance of railway traffic?—I would not to go so far as to say I see no objection. I do see a great objection from the continental point of view. I have heard Mr. Gooday's evidence, but before that I had considered it, because, obviously, it would mean an alteration in the time table. You would have to introduce, say, four columns on the same page in the April time table—first week, second week, third week, and fourth week, making a difference of 20 minutes in each time. It has been suggested that no alteration such as I mention would be necessary, that merely an asterisk would do; but that is a detail. I myself think it would necessitate four columns instead of one in the time table, showing the alternative times.

368. You do not anticipate any other alteration in your time table, beyond that which you have just stated?—No. I have considered the improbability of the continental nations adopting this practice, and I have assumed that it would be necessary for the English railway companies to retime their trains—just to alter nominally the times of their trains.

369. And what are the advantages, in your view, that would accrue by the adoption of the proposal?—I think that first and foremost I should put the saving in artificial light.

370. Have you worked that out approximately?—I have worked out a rough estimate. Of course we do not lose the hours of darkness, naturally, and therefore the signal boxes on the main line would have to be open all night; and I have made a liberal allowance for that. I have also made a deduction for goods yards having still to be lighted. This alteration, of course, affects the passenger traffic principally, and I have assumed, in the case of the London and South Western Railway, a saving for the whole period of about £4,500 per annum, including carriage lighting.

371. Do you consider that your traffic would materially be added to by the change?—That is my impression, certainly. The way I have arrived at it is this: I have taken the particulars of the short-distance traffic on a Saturday—not counting the week-end tickets of course, but

Chairman—continued.

just the people who go out and home on the same day—and on Saturday I find that at Waterloo we take about £250 more than we do on other days in short-distance bookings. I do not think it is unreasonable to say that if this scheme came into operation we should get perhaps about half that increase on the other days; that is my own impression; and then I am also assuming that this Bill, if it came into force, would be a considerable incentive to people who now live in town to live further out, because of the longer daylight available in the country; and of course we have an extensive riverside traffic, which would be augmented. I should not be surprised if we got on an average £1,000 a week advantage from all sources.

372. Roughly, about £25,000 a year?—Yes.

Mr. *Holt.*

373. That is gross earnings, of course?—Yes.

Chairman.

374. You say that you do not apprehend any serious disadvantage?—Yes.

375. Particularly as the change would be made at a time when very little traffic is moving. What do you mean by that?—I mean that, if the change was carried out as proposed at 2 a.m. on Sunday morning, we only have a few goods trains moving on the line at that time, and but one passenger train.

376. Have you any international traffic?—It is inconsiderable compared to other routes. There is a continental service via Havre to Paris and South of France. We have a train from Waterloo at 9.50 p.m., which connects at Havre with the fast train to Paris.

377. From Southampton?—Yes, via Southampton. It is a very convenient service, and it is taken a great deal of advantage of by people who want a night's rest on board. It just allows them a comfortable night, and they get up in the morning at Havre and catch a fast train to Paris that runs in connection.

378. And do you get any American traffic?—Yes, there are Americans who get out at Southampton from the American boats and go over to Paris that way.

379. And any dislocation in connection with that service is not appreciable, in your mind?—Quite so.

380. You have an extensive riverside traffic?—Yes.

381. And do you consider that that would be materially augmented?—Yes, I think so. I have included that in my estimate of about £1,000 a week.

382. That would enable people to go in for having more playing grounds round London?—Certainly. It is notorious, I think, among people who go in for athletics at all, that there is a great and increasing difficulty in getting sports grounds within reasonable distance of London. I assume that, if more daylight were available for sport, it would be an inducement for organisations to have grounds further out of London.

383. As

Mr. *Pirie.*

383. As I understand it, the saving of daylight you have stated to be for your railway alone £4,500 ?—Yes.

384. Can you form in your mind any idea at all what the saving of daylight would be for the whole of the railways in the United Kingdom, probably ?—I have worked it out simply on the number of miles open. I found it worked out to £92,000 for the whole of the railways in Great Britain, not including Ireland—that is including carriage lighting.

385. You gave the number of trains running at 2 a.m. on your own railway in the morning as two goods trains ?—If you want me to be accurate, I have the particulars ; I said a few goods trains.

386. I thought you said two ?—I said one passenger train. I have a statement here, if you wish to know it correctly.

387. It might be interesting just to have it ?—We should have certain trains moving on the line at the time the change is made. I find that there is a total of 25 trains all over the system, but only one of those 25 trains is a passenger train.

388. And it would be the same proportion for other railways in the United Kingdom, probably ? That I could scarcely say, but roughly you might take it so.

389. Should there arise difficulties, as there would, of course, either in the deliveries of mails on the arrivals of continental trains, do not you think that those would be merely initial difficulties in starting such a scheme, and that very shortly it would be found necessary for other railway companies to conform to the new system by retiming the trains in accordance with the general convenience of the public ?—You are speaking of the English railways, are you not ?

390. I am speaking of the English railways and the delivery of mails ?—I see the difficulty. I heard Mr. Gooday's evidence, and on his point of connections to the North, of course, it is obvious that a lot of those trains he refers to are timed mainly for the convenience of English people, inland people, and they would not be likely to alter just for the sake of a few continental passengers. But, on the other hand, I do not think one ought to suppose that it is not possible to get other convenient connections. The railway companies are constantly meeting at a conference together, and altering and re-adjusting their time tables in conformity with the convenience of the public.

391. And with the greatest requirements of the day ?—Yes ; and my own opinion is that at these time table conferences all these difficulties would disappear.

392. The great question is the delivery of mails in London. Everything would be, to a large extent, as far as possible, subsidiary to the question of the convenient delivery of our mails at times most useful to the public ?—Certainly. I may say, in reference to one point made by Mr. Gooday, that, although I see no difficulty, of course, in this piecemeal alteration, of the two systems I would prefer the one alteration. I would just like to make that clear.

Mr. *Holt.*

393. That was really the question that I wanted to ask you most particularly. I understand that you are quite clear that you would prefer one alteration twice a year to the four alterations proposed ?—Yes.

394. In fact, what you would suggest, I presume, is one alteration of one hour ?—Exactly.

395. Your continental traffic that you refer to, as compared with that of the Great Eastern Railway by Harwich, is not very important ?—That is so.

396. It is not the mail route, I take it ?—It is not the regular mail route ; we convey mails by that route, but it is not the regular mail route.

397. I imagine that the inconvenience of altering the times on Sunday morning would be greater, probably, to some of the northern railways ; they probably move a great deal more traffic on a Sunday morning ?—I do not see why.

398. I thought they might have a larger proportion of goods traffic ?—Yes, they have a larger proportion of goods traffic ; but I do not quite see the inconvenience, because the alteration would be made on the Sunday morning, and there are no Sunday deliveries.

399. And I suppose also these northern railway companies, with their longer distances to travel, would probably have more passenger traffic in the small hours of Sunday ?—No.

400. They have a large number of night trains ?—The London and South Western passenger traffic is as much as that of any line, I suppose.

401. What I mean is this : the longer the distance of the traffic, the longer the journey, the greater the probability of having traffic on Sunday morning in night trains—sleeping trains ?—I suppose it would be so.

402. The London and North Western has probably a great deal more than one passenger train on a Sunday morning ?—Yes, with the Scotch and Irish connections.

Mr. *Richards.*

403. You believe that advantage would be gained by the general public living out in the suburbs—going further out ?—Yes.

404. A suggestion has been made about the City clerk having time to play. Is there not a much more important being than the City clerk in the wage-earner in factories and mines ?—In a scheme of this sort, I think that everyone should be considered.

405. You think they would have some time for sport which they only get once a week now ?—Exactly.

406. Do you see any difficulty in railway servants getting to their work ?—No.

407. Especially if one considers that you are not like a factory. I believe that your signalmen and your guards and drivers, and many other persons, have to come at all kinds of hours, according to shifts ?—Yes ; the signalmen, as a rule, have three shifts. They work eight hours each, and they change at 6 a.m., 2 p.m. and 10 p.m.

408. So that you do not perceive any difficulty ?—I do not see the least difficulty about railway servants coming to their duty.

Mr. *Pearce.*

409. I understood you to say that you did not see, talking of the City clerk and men working in a factory, any difference in their importance?—All I want to say is that in a scheme of this sort, I think the convenience of everyone should be considered.

410. One man is as important as another, from a passenger point of view?—Exactly; unless one travels first class.

411. When you say that you prefer one alteration, I understand you to refer only to the summer months, and then reverting to the present practice in September?—Yes; I take the essence of the scheme—an alteration in April and altering back again in September.

412. Do you remember when Greenwich mean time was established down in Cornwall, and generally in the West of England, in 1880?—I am afraid I cannot.

413. Not the Act of 1880, which established Greenwich mean time in place of all the local times down there?—I do not remember it, although I am a West of England man, as a matter of fact.

414. I wanted to ask you whether you thought it would be a convenience to them to have this change down in Cornwall, amongst the general population?—From what I know of the West of England, I think the scheme would be as convenient there as elsewhere.

415. And that, whether it was made an hour or an hour and 20 minutes?—The advantage of the hour is simply this: that it is one alteration; and some objectors say, of course, that four alterations are liable to confuse. That is what I have heard, and to get over that objection I agree that it would be better to make one alteration.

Chairman.

416. We may take it that you approve of the alteration to Mid-European time?—Certainly.

417. For good and all, not for six months in the year?—I have not expressed that opinion yet; but if you ask me, I see no difficulty in adopting the alteration permanently.

Chairman—continued.

418. I mean, in the event of the piecemeal alteration suggested by Mr. Willett not being approved of as an alternative we may take it that you would approve of Mid-European time being adopted?—Yes.

419. For how long, for six months?—For six months or permanently.

420. You have no choice as regards that?—No, I see certainly an advantage in making one alteration, whether it be permanent or whether it be merely for the summer.

421. But you prefer the scheme as propounded by Mr. Willett?—Yes, one alteration for the summer only.

Mr. *Pirie.*

422. Would you prefer the scheme propounded by Mr. Willett, or the alteration of one hour twice a year?—I rather took it from the Chairman that, when he said "the scheme as propounded by Mr. Willett," he meant not a permanent hour's advance but simply a summer alteration, and in that sense I replied.

Chairman.

423. But Mr. Willett's scheme is a piecemeal alteration?—I should like it to be clear that I prefer a one hour alteration, not a piecemeal alteration.

Mr. *Pearce.*

424. For the summer time?—Yes.

Mr. *Holt.*

425. You would prefer one hour for summer only?—Yes.

426. You would prefer it either to a piecemeal alteration for the summer only or to a one-hour alteration for all the year?—Yes.

Mr. *Pirie.*

427. Do you speak for your General Manager and for the Board?—I do not speak for the Board, because I am not aware whether the Board have considered the question, but I speak for Sir Charles Owens.

(*The Witness withdrew.*)

Colonel STAFFORD EDWARD SOMERVILLE called in; and Examined.

Chairman.

428. I understand that you are Colonel Commanding the 5th Battalion King's Own Yorkshire Light Infantry?—I am.

429. What is your profession?—I am a solicitor of 28 years' standing and senior member of the firm of Baxter & Co., Doncaster. My battalion is a new one composed out of companies from two other battalions.

430. Under Mr. Haldane's new scheme?—Under Mr. Haldane's scheme, and we have to form two new companies altogether in other towns. In my battalion we have three companies in Doncaster and one company each in Pontefract, Goole, Normanton, Castleford and Conisbrough.

431. What view do you take of Mr. Willett's scheme?—All our drill is done after the men have finished their work at night. We never fall in till 7.30 p.m. The drill field is about

Chairman—continued.

two miles off. I am speaking of Doncaster to begin with, and it takes very likely three-quarters of an hour to get to it. We are obliged to put in an hour's drill, and by the time we have finished, except in the very height of summer, it begins to get twilight, and later on it is beginning to get dark, and during twilight men never drill as steadily as they do in the daytime, and of course our men, being as you might say rather raw men, more raw than regular troops, the more we can see of them the better they learn to drill and the better they do drill. I think that this is a most excellent scheme and will greatly help Mr. Haldane's territorial scheme. With regard to musketry, I consider that it is most valuable. We do most of our shooting, of course, in the evening, and, except on half holidays, hitherto, except in the height of summer, it has been hardly

Chairman—continued.

hardly worth while our going down to shoot, but if we had an hour and 20 minutes longer, it would make it a most valuable asset for training our men to have, after their work is finished, an hour's longer daylight for musketry shooting.

432. How far is the range from headquarters?—Two and a half miles from Doncaster, 13 from Goole, 17 from Pontefract, 19 from Castleford, 19 from Normanton, and about seven miles from Conisbrough.

433. Then, except as regards Doncaster, this change would not have any appreciable effect?—Not so appreciable as in connection with Doncaster, but at the same time the men can put in a much more valuable half-day.

434. And you have often thought that some alteration should be made in order to enable the Volunteers to put in more work?—Yes, I have often wished that there was some way by which we could put in more work, but never until I read Mr. Willett's scheme did I imagine that it was feasible in any way. Now it seems to me so feasible that I cannot imagine why the ancients did not think of it years ago.

435. Have you considered the alternative proposal, to alter the time by one hour?—I had not heard of that, but I think that altering 20 minutes at a time is the best plan that could be thought of, and I see no objection at all to an alteration of one hour and 20 minutes.

436. Do you think that your Volunteers would tumble into such an arrangement?—I think they would sleep into it.

437. You travel a good deal, I understand?—Yes, I have very often travelled, and I have always been very interested in the alteration of clocks by captains, and have discussed the alterations with the captains, and it has never affected me in the slightest degree. When we get to a foreign country it never has seemed to make the slightest difference. The steamboats and foreign trains seem to run very regularly, and when we arrive it does not matter as to an hour or two when one gets there, one is very pleased to arrive at all and find that a train is going to start at some time in the day.

438. Have you had an opportunity of discussing the matter with your brother officers?—Yes, I have often discussed the question with them, as to the great advantage that it would be if we could have more time.

439. So that both from the point of view of increased opportunities for musketry practice and for drill generally, you approve whole-heartedly of Mr. Willett's scheme?—I do.

440. Is there any other point in regard to your main evidence that you wish to take?—I think not. I agree with everything that Mr. Willett says in his pamphlet.

441. Of course you have not any great experience as regards possible dislocation of time abroad?—No, I am a solicitor, but I very often go to Sweden, and in travelling to Sweden and back it does not seem to make the slightest difference, although the time is different there; there is an hour's difference, but it does not seem to make any difference to us when we arrive there, and when we come back there is an hour's difference again and nobody notices it.

442. Because the difference is a recognised difference of either one hour or two hours in front of Greenwich time. If you adopted a piecemeal alteration of 20 minutes once a week, it might conceivably bring about a considerable amount of confusion, might it not?—I think if there was a total alteration of an hour or an hour and 20 minutes, everybody would feel it; but if it is only 20 minutes at a time on a Sunday night, I think people would wake up next morning and would not notice it in the slightest degree.

443. Do you think that your men would be prepared to face any possible fines for not keeping proper time under the scheme?—Our men have always been liable to a fine of £4 15s., and they seem rather frightened at a £5 fine, but that is only in the case of non-efficiency, and I have never enforced it. I have been commanding my detachment for several years before I became colonel, and I have never had to enforce it, and I do not now.

444. Your view undoubtedly is that it is a scheme that would meet with the general approval of the Volunteers of the country?—I am sure that it would with the officers, and I think it would be with the men. The men would not notice it, they would find the benefit of the daylight.

Mr. *Holt.*

445. So far as the advantages that you expect to get are concerned, an alteration of one hour at a stroke would give them to you equally with an alteration of 20 minutes at a time?—I quite agree with you, but I think the people of England would feel such an alteration a good deal more.

446. You may or may not think that one method is more convenient than the other, but so far as your advantages are concerned, you would get those advantages equally by either method?—Yes, I think you would.

447. And supposing that it was not thought to be convenient on a balance of advantages to alter 20 minutes four times, you would rather, I take it, have the time altered for an hour once than not have it altered at all?—Yes, I suppose I would, but this 20 minutes' scheme seems so very feasible that that is the scheme I have adopted in my mind as being the one that should pass.

448. May I ask what class of men are the privates in your regiment?—A great many of them in Doncaster work in the Great Northern plant works, they make the engines and carriages, the remainder I think you might say are almost entirely miners and glass-bottle makers, and the Goole people are dock labourers chiefly.

449. And generally the advantages that we would get are simply those that would arise from universal consent to get up earlier in the morning?—That is quite right.

450. And if everybody agreed to alter the ordinary business times and ordinary working times by an hour a day, that would give you all your advantages?—Yes, if you could get them to do it.

Mr. *Richards.*

451. I suppose you would see an advantage as well to the soldiers of the line?—I have not had much to do with the Regulars.

452. Does it appeal to you that this lifting of the day earlier would be better for our soldiers, enabling them in marching to start earlier in the morning instead of going through the heat of the day,—if they had done their march in the cool of the morning rather than in the heat of the day?—Yes, I think you are right. I had not thought of that point.

Mr. *Richards*—continued.

453. I suppose that your Goole people would feel the advantage, such, for instance, as miners and other people, in being let off earlier from work? Do you get interfered with by darkness coming on?—Yes. Except in the very height of summer it becomes twilight before we have finished our drill, and therefore we cannot instruct our men as well in the twilight; and we have not the same control over our men when it is beginning to get dark.

(*The Witness withdrew.*)

Mr. BASIL HOLMES called in; and Examined.

Chairman.

454. You I believe are Secretary of the Metropolitan Public Gardens' Association?—I am. The Earl of Meath is Chairman. I should also like to add that I am a member of the Middlesex County Council and of the Middlesex Education Committee. I am also on the Committee of the London Playing Fields' Association, and I was Honorary Treasurer of the Lads' Drill Association, which is now amalgamated with the National Service League.

455. How long have you occupied your present position?—About 18 years as Secretary of the Public Gardens' Association. I have been 15 years a member of the Middlesex County Council.

456. Would you tell us generally what the work of the Association consists in?—The work of the Metropolitan Public Gardens' Association is chiefly disclosed by its title. It is to secure and lay out open spaces as gardens, play-grounds, and places of recreation generally. We always try to get hold of any spaces that we see going or that are likely to be of use for the community in crowded localities, both in London and in the suburbs round London.

457. And your main endeavour is to try to educate the public to the importance of sunlight, fresh air, and recreation?—Certainly; anything that tends to increase the facilities for fresh air and recreation of course commands our hearty support.

458. Have you observed any great change in public opinion in regard to earlier hours of closing, and so forth?—When I was first Secretary of the Association, we had great difficulty in inducing public authorities to give us their support in any way in connection with our schemes; they did not seem to realise their importance from the point of view of the physical welfare of the community; but I have observed an enormous change in the attitude of public authorities in regard to the value of recreation and fresh air more especially since the the advent of the London County Council. We were educating public opinion, of course, by what we did ourselves, and when the London County Council first came into existence in 1889, our Chairman, the Earl of Meath, almost as a matter of course, was made the Chairman of the Parks and Open Spaces Committee of the Council, in recognition, as it were, of the educative value of our work; and local authorities since then have all taken their cue from the County Council, and far from not listening sympathetically to any schemes that we may bring before them, they oftentimes, now-a-days, come to the Association and seek for suggestions, or put suggestions before us, which they want us to take up.

Chairman—continued.

459. Have you considered the alternative proposal of changing the time by exactly one hour to mid-European time?—Do you mean permanently or only for the summer months?

460. That is as you wish. Have you considered that scheme?—I have considered the idea of advancing the time permanently all the year round by one hour. Some of our friends I have seen are inclined to that, as likely to be less troublesome if you do it once for all, than having to put the clock back again at a certain time of year.

461. Have you fully considered Mr. Willett's scheme for piece-meal alteration?—Yes.

462. And what is your view with regard to it?—So far as my view goes, people would probably drop into a piece-meal alteration better than if they were told suddenly that they had to put on their clocks an hour and 20 minutes.

463. You do not anticipate any considerable objection to that scheme?—I do not. From our point of view of course dealing with open spaces the Association feels very strongly that it would enormously increase the value of these open spaces to the public at large to have this additional time. These spaces have been acquired in many cases at enormous cost. Look at the additions that have been made of recent years to Hampstead Heath; probably each addition costing £1,000 per acre; and to enable a ground like that to be utilised for six months in the year for one hour a day more than is possible at present, seems to us most valuable, for it would enable a ground which is on the outskirts of London to be used by a far larger number of people than can at present be the case, owing to the darkness falling. As a rule these larger open spaces on the outskirts of town can only be used on the Saturday half holiday to anything like the full extent, because of the lack of time for getting backwards and forwards: the dusk falls before it is worth while for people to make use of them; so that this scheme of Mr. Willett's would, we think, give an increased value to all these open spaces, which we have acquired at such an enormous cost, and which of course, have to be maintained at a considerable cost to the community.

464. Do you speak officially on behalf of the different associations with which you are connected?—

Chairman—continued.

nected?—I speak officially on behalf of the Metropolitan Public Gardens' Association, who have passed a definite resolution in favour of the Bill to the following effect: "That this Association approves the principle of the Daylight Saving Bill, and authorises the Chairman of the meeting to sign the manifesto which it is proposed to publish in the Press." That manifestation was signed and was published. I might also mention, that from an education standpoint, as a member of the Middlesex County Education Committee, it seems to me that this increase of daylight would be very valuable in connection with the organised games in which we want scholars especially in elementary schools to take part. Then again there are nature study expeditions to be thought of, and Schools of Rural Industry in which you want to encourage gardening, both at home and at school. Then again in connection with the evening continuation schools and technical classes, which we have in various parts of the county, to which people have to come from considerable distances, an increase of daylight would be very valuable in encouraging scholars and others to make use of these educational advantages.

465. And you do not consider that it would be any trouble to keep on moving the hands of the clock eight times a year?—It would be some trouble, but it does not seem to me a very great deal of trouble. Of course rather than not have the increase of daylight at all, we would rather see the clock moved once. We think it very important to have it, and the exact method of carrying it out is a question rather of detail than of principle.

466. On the whole, you approve of the 20 minutes' proposal?—Yes, I think on the whole people would slip into it more easily, than if an hour and 20 minutes were advanced all at once.

467. You think that it would not be desirable to move clocks and watches backwards, but that would have to be done in September, would it not, under the scheme?—Yes, unless you made the complete revolution of eleven hours forward.

468. How would you get the longer hour in the four weeks in September, unless you resorted to that?—It is only a mechanical difficulty of moving the hands of clocks and watches backwards that I thought of. I suppose it could be got over.

469. You think that there would be considerable saving to the public as regards artificial illuminants?—I am certain that there would. I imagine that the public would alter all its times for going to rest, equally with the times for getting up; it would naturally do so.

470. Do you use artificial light to any extent in your various places?—Not in the open spaces. Certain open spaces are lighted, but most of the smaller ones are grounds which have to be closed at dusk, and sometimes there is great difficulty in closing the ground, because the people do not like turning out of it. Take for instance such a garden as I had charge of for many years, which is now maintained by the Office of Works, the Tower Gardens, that we laid out surrounding the Tower moat. We have had the greatest

Chairman—continued.

difficulty in closing those grounds half an hour after dusk, because of the crowds of people which wanted to make further use of them. So that in such a small ground, which we have known 8,000 people make use of on one Saturday, I can conceive that this Bill would present the greatest advantages in enabling the grounds to be utilised for an hour and 20 minutes longer than it is possible at present.

471. Can you give the Committee any statistics as regards the number of people who use your playgrounds?—The numbers vary very greatly, but of course there are Bank holiday statistics to be got as to the estimated number of people who use Hampstead Heath, and large spaces of that sort; but as regards making a census of people using a particular ground, we only carried that out in the case of the ground that I have mentioned, the Tower Gardens, and we found on a fine Saturday in this ground of only about an acre and a half in extent that 8,000 people passed through it, or utilised it in the course of the day, and other open spaces in poorer parts of London are utilised to as large an extent proportionately. On fine days they are crowded with people.

472. So that your view on the whole is that this change would lead to a considerable amount of opportunity for recreation?—For recreation, also for facilities for education. and also for facilities for drill. In connection with the Lads' Drill Association, I had a great deal to do with promoting the formation of Cadet Corps, and Cadet Battalions. The lads who join those corps can, as a rule, only get away in the evenings, and one of the main difficulties which presented itself to us in connection with forming these Cadet Corps was the lack of time, but the scheme would certainly afford more time, and enable some of these spaces to be utilised as drill grounds to a greater extent than they are at present, and enable lads to join these Cadet Corps to their great moral and physical advantages,—in far larger numbers than they can at present. So that in that way I agree with previous speakers, that we should be helping on the Territorial Army scheme immensely, because one of the difficulties there is lack of time. Our Cadet Corps movement, as it were, hangs on to the Volunteer movement; you can use the Cadet Corps to lead on the lads just at the right age to join the adult Volunteer Corps. We get hold of the lads as they leave school, and try to bridge over, by the Cadet Corps, that very critical time when they leave school at the age of 14, and are not eligible to join any disciplined adult corps till they are 17. Between 14 and 17 years of age the Cadet Corps movement takes up and gives a continuation of discipline after school life, until a boy becomes of adult age and is able perhaps to join the Volunteers.

473. We may take it, may we not, that the employers of these Cadets would find it to their advantage in giving leave to their lads if they had more daylight?—I think so decidedly. A boy who is under a sense of discipline is far more useful to his employer than those we see just hanging round street corners or watching football matches.

474. What

Chairman—continued.

474. What I mean is that if you advanced the people of this country with more daylight, it would help employers of labour to give greater opportunities for drill?—Yes, because they would be able to leave off their work earlier for one thing.

Mr. *Pirie.*

475. In your capacity, which brings you into close touch with public parks and recreation grounds, you must naturally be aware of the somewhat disquieting reports that we hear as to the drop in physique and health of the coming generation?—Yes.

476. Do you think that such a scheme as is proposed would have any effect on that very important question?—Yes, I think it would have a very great deal of effect. This additional hour of sunlight, and the possibilities for recreation, and also of earlier hours at which everybody would retire to rest and get their sleep more in the hours of darkness than they do at present, would, I think, have a great effect.

477. It would do a great deal, perhaps, to check the growing physical deterioration which is so apparent?—Yes; we had that before us when there was a Commission, if you remember, on Physical Degeneration. Our Chairman, the Earl of Meath, gave evidence before that Commission.

478. Perhaps you heard Mr. Vickery's evidence as to what he estimated the saving would be to the railway companies of Great Britain alone?—Yes.

479. From your experience in the various Boards that you serve on, do you think that the general public would derive great pecuniary benefits from the adoption of this scheme?—I fancy that in our public offices and schools we should use far less artificial light than we do at present, because we should be able to leave off at an earlier hour, and therefore the ratepayers would certainly benefit by the saving effected in artificial light.

480. You are a County Councillor?—Yes.

481. Perhaps you will not be able to answer this question. Have you any idea what an ordinary artisan's family would save either per week or per year on artificial light?—No, I am afraid I cannot say, but I do, of course, know that an ordinary family uses very poor light in the evenings, and that it cannot be good for those who have to do any reading, or any close work like that, to utilise such poor light; and they generally try to save on their light.

482. And from their circumstances they are not in a position to be able to afford good artificial light?—No.

483. And therefore they suffer more proportionately than wealthier people from being obliged to use inefficient artificial light?—Yes, they certainly suffer in their eyesight; we find that over and over again in connection with scholars in our schools.

Mr. *Holt.*

484. I understand that what you really want, and your real reason for supporting this Bill, is that you think it would be a great advantage to adopt earlier hours in this country?—Certainly.

Mr. *Holt*—continued.

485. You really do not very much care whether the time is altered one hour once and for all, or whether there are three or four alterations of 20 minutes each? You have a private opinion that the 20 minutes' plan would be the more convenient way, but, so far as your object is concerned, you do not mind which it is; by either method you would equally attain your object?—Yes, but I think that the form of doing it piece-meal would be rather more convenient.

486. But, so far as your real object is concerned, either method would enable you to attain it?—Yes.

487. I think you have been in the room, and perhaps you have heard Mr. Gooday's evidence?—I have heard two witnesses.

488. Then you did not hear Mr. Gooday. What would you think of a suggestion to adopt Mid-European time—that is to say, to advance the time by an hour all the year round—to have no alteration in April and October, but to make the time an hour earlier all the year round?—That would partly carry out the scheme that we advocate, of advancing the time in the summer months by 1 hour and 20 minutes, but it might prove inconvenient in the winter months.

489. But it would carry out the whole of the scheme that you advocate and something more?—Yes, but that something more might be found inconvenient.

490. You are on an Education Committee; what are the ordinary school hours in elementary schools?—From 9 to 12 and 2 to 4.

491. Is that in winter and summer alike?—Yes.

492. You think that it would be an advantage really to work from 8 to 11 and from 1 to 3?—Yes.

493. Then why do you not do that?—Because you cannot do it in one case without everybody following suit. The whole organisation of the community must be altered in order to get it done; you cannot do it piece-meal.

494. But surely in the elementary schools there would be no difficulty whatever in altering those times by one hour in summer, if the Education Committee thought it an advantage?—Would there not be a difficulty in connection with the teachers, who have to come from a distance sometimes to the school; they have to fit in their arrangements? Railway trains and travelling facilities are all based upon the idea that business begins at a more or less certain regular time. One thing fits in with another, and unless everybody altered their arrangements it would be difficult to bring about such an alteration as you suggest.

495. You seriously think that it would be impossible?—I do not say that it would be impossible, but I say that it would cause inconvenience, because one thing is dove-tailed into another, and railway trains and travelling facilities assume that 9 o'clock is the hour when a beginning is made of the day's work in schools and elsewhere.

496. You think it would be impossible for the Education Committee of the Middlesex County Council to simply fix their school hours

Mr. *Holt*—continued.

an hour earlier?—I do not say that it would be an impossibility, but I think it would be very inconvenient, and cause considerable difficulty both to the parents and to the teachers.

497. But if you did make that alteration, of course you would get your advantages?—So far as those children were concerned.

498. And, so far as the teachers are concerned, the teachers would also get the advantage of having longer evenings at their disposal?—Yes; but I think they would be inconvenienced in getting to the schools and fitting in their meal-times, and that sort of thing. The meal-times would be arranged on the 9 o'clock basis, whereas the 8 o'clock basis would necessitate a re-arrangement of that, and other people would be affected. You cannot deal with it just for one class of the community; it would not be an impossibility, but there would be a difficulty, I think.

499. Have you ever heard it suggested that sometimes too much time is given to athletics by schoolboys?—Yes.

500. You do not agree with that?—That depends upon the cases. There may, of course, be cases where there is some truth in it; but this proposal would not affect only schoolboys, it affects adults; it affects the whole community at large. Schoolboys are only one small section of the community.

501. I think you said that you were not really in favour of making the change an hour earlier all the year round?—I thought I said that I would rather have that than not have anything at all; but that in the winter season a change of one hour might cause inconvenience.

502. That is what you did say; but, so far as saving artificial light in schools is concerned, the only time when you would save artificial light would be in the winter months, would it not?—Our schools, you see, are used sometimes for evening continuation schools and technical classes, and things like that, and we should effect a saving there, as well as in the actual elementary school hours.

503. You do not think that the greater opportunity of indulging themselves in athletics would induce a number of the pupils and people who attend evening continuation schools and technical classes to abstain from attendance at them?—No, because those who attend the evening continuation schools and technical classes do so distinctly in order to better their chances in life; they do so quite seriously.

504. Do you not think that persons might, for instance, attend a continuation school by electric light or gaslight between 8 and 9 o'clock at night, whereas if the alternative was to go and play at cricket or football it might get the better of them?—There might be a few like that, but those who attend evening classes are, as a rule, the more earnest-minded who do so for the distinct advantage of gaining some particular knowledge.

Chairman.

505. And they might be braced up by an hour's exercise to do better work in the continuation class?—That is the other way round of looking at it.

Mr. *Richards.*

506. I should like you to give us a little more information concerning this view that you put forward, about the poor suffering from inefficient light; what light do you suppose the poor have that is detrimental to their eyesight or worse than what the rich enjoy. Candles are not used to-day as they used to be?—I have seen poor homes in which a wretchedly dim light is used, a very small oil lamp or even a candle just in one room.

507. I do not think they suffer from that unless they are attempting to read?—No, probably not.

508. I think you said that you had noticed many children who had bad eyesight?—Yes.

509. I do not know that the poor suffer any more than the rich in that respect, only rich people seem to wear glasses more than the poor do?—We find in our schools that we have to give facilities for giving children spectacles. We have tried to help them. We examine them for eyesight, and where we find defective eyesight we try to provide spectacles—that is by voluntary means.

510. I think that is more a question of feeding than bad light. You will know, of course, that a number of the people in this House value daylight so much that they do their reading and writing by daylight rather than by artificial light?—Yes.

511. I suppose that one objection to changing the hours of school would be that in many cases the mother, who is the drudge of the household, cannot employ a servant, and as a consequence has to do all the cooking, and she does not want to get four or five meals in the middle of the day?—No doubt.

512. But if this proposal of Mr. Willett's were adopted, if the father came home to his established meal, which is an institution in the English working-class home, I mean the mid-day meal—they do not dine in the evening; they try to get all the family there that they possibly can, and they would object to the school hours interfering with the dinner-time which suits the parents and the sons and daughters, who may be working in various factories?—I cannot conceive that it would be very convenient for a child to come home and want his meal at one hour and then for a son or daughter or the father to come home and want their meal at another hour; that would be an impossibility in a poor family, I think.

513. But you do see the advantage of lifting the daylight or the time for getting up?—Yes.

514. And it is necessary that that should be done by Act of Parliament, because it would alter factory times and every other time?—Yes, every organisation would have to fit in with the new arrangement.

515. You would not be surprised to learn that there are some employers in the country who lift their hours of work an hour-and-a-half every April, and allow them to fall an hour-and-a-half every September?—I have heard that at the Garden City at Letchworth certain manufacturers are inclined to do that. I do not know whether they have actually done it.

Mr. *Richards*—continued.

516. I may say that I lived in a town for 20 years where we used to do it, and it affected 100,000 people. We lifted our hours of work in winter by an hour-and-a-half. We used to go to work at 8 o'clock in the morning, and in summer we started to go at 6.30, and everyone who adopted those hours preferred them?—I know that in Holland they are 20 minutes in advance of the railway time, and you see two times going on in the same place, railway time, which is Greenwich time, and the standard time of the town, which is 20 minutes in advance.

Mr. *Pirie.*

517. But that is very awkward and inconvenient, is it not?—People seem to get used to it; but of course it is rather inconvenient.

Mr. *Pearce.*

518. What you say with your Metropolitan experience you would apply, without any doubt I suppose, to the whole of the country?—Yes, without any doubt.

Mr. *Pirie.*

519. I understand that the proof which you have sent is not embodied in your evidence, and I want to know whether the opinion of Lord Meath, the Chairman of your Association, has been in any way before the Committee?—Lord Meath's own opinion I can give you.

520. I should like you to read to the Committee what Lord Meath has said in favour of this Bill, in support of the views of your Association?—Lord Meath said: "Anyone who can bring more sunshine into the life of the average Briton will be a benefactor to his country, and, although your scheme might be carried without legislative enactment were we not such slaves to custom, I fear that no common action is to be hoped for without the intervention of the Legislature. I thank you, therefore, for having had the courage to advocate so simple a proposal, and trust that before long your ideas may be the means of adding to the amount of sunshine enjoyed by Britons. . . . . Sunshine destroys germs, raises the vitality, and consequently the spirits. Future generations will, I believe, rise up and call you blessed."

521. I would like to know whether Sir William Vincent, who I see is mentioned by you as being a Vice-Chairman of your Association, is a former member of this House? Is he a brother of the late Sir Howard Vincent?—Yes, he is. He is one of our most active Vice-Presidents and he signed that particular resolution because he happened to be in the chair on that day when the Association passed the resolution in favour of the Bill.

Mr. *Holt.*

522. I just want to ask you what is the ordinary dinner-hour of the working-classes whose children attend elementary schools?—I imagine that it is 12 o'clock or thereabouts.

523. That is what I imagine. I think you

Mr. *Holt*—continued.

told us that the school interval was between 12 and 2?—Yes.

524. If the school interval was between 11 and 1, that dinner-hour would equally fall in that interval?—Yes.

525. Therefore it would not cause the inconvenience that was suggested by Mr. Richards?—But the children have to get to and from the school, and a certain amount of time is consumed in walking backwards and forwards; and sometimes in country districts the schools are a considerable distance away from the homes of some of the children, more than half-an-hour's walk perhaps for small children; so that it might cause that inconvenience notwithstanding.

Mr. *Pearce.*

526. If the children left off school at 11, and the members of the family who were employed at work did not leave off till 12, the dinner-hour would be cut in two?—I think so, because the husband has to come from his work, which may be a long distance away, and the children may have to come from their school, finishing at 11. The one would get home about half-past 12, and the other at half-past 11.

Mr. *Richards.*

527. I do not think 1 per cent. of the working-classes of this country leave off work at 12. In factories in Lancashire and Yorkshire and other parts of the country they leave off at 1 or half-past 12 at the earliest; but the general time is 1 o'clock in the Midlands especially.

Mr. *Willett.*

528. In the building trades they leave off at 12?

Witness.

Yes, that is what I mostly come across in Middlesex—building trades of all kinds.

Mr. *Holt.*

529. I think the dock workers all leave off at 12?—But now I come to think of it, the railway works employees leave off at 1.

Chairman.

530. Would you be in favour of an alteration of the time, not by legislative enactment, but simply by an attempt to bring moral pressure to bear upon employers of labour; do you think that that would be a practicable thing?—Some might adopt it, and some might not. But then, other things hang on to it. The railway time-tables would not be fitted in with that alteration.

531. You do not consider the change practicable, unless it is universally adopted?—I should scarcely think so. In exceptional cases it might be practicable, but not as a rule.

(*The Witness withdrew.*)

Tuesday, 19th May, 1908.

MEMBERS PRESENT:

Mr. Holt.
Sir Walter Nugent.
Mr. Robert Pearce.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Sir ROBERT S. BALL, M.A., LL.D., F.R.S., F.R.A.S., &c., called in; and Examined.

Chairman.

532. I think you are the Lowndean Professor of Astronomy and Geometry at Cambridge, are you not?—Yes, I am.

533. And you were formerly Astronomer Royal of Ireland?—Yes.

534. You are Ex-President of the Royal Astronomical Society?—Yes.

535. A Fellow of the Royal Society and a Director of the Cambridge Observatory?—Yes.

536. Have you studied the scheme that has been prepared by Mr. Willett with regard to the saving of daylight?—I have, yes.

537. Can you favour the Committee with any general expression of opinion in connection with the practicability of the scheme?—Well, I think that it is a most admirable attempt to solve an admitted difficulty—the disability under which we labour, on account of our latitude, as compared with other countries in lower latitudes. The scheme of Mr. Willett would render a large additional amount of sunlight available during summer. So far as scientific questions are concerned, I do not ignore for a moment that the scheme would give rise to some difficulties. The dislocation of the time arrangements with regard to other countries would be considerable; at the same time I think they are only difficulties that might be overcome. I do not see any insuperable scientific objection to Mr. Willett's scheme, because astronomers are well accustomed to various kinds of time—a mean time, an apparent time, a sidereal time, and so on, and the addition of one more time would not add much more inconvenience or trouble, so far as scientific work is concerned. Nor do I think that it would be any great drawback, as has been suggested, with regard to the use of standard instruments because it is contemplated in the Bill—and most properly—that Greenwich time, which now is practically the time of the whole world, shall be consistently employed for scientific purposes and navigation. To my mind, there is, as I say, no scientific difficulty whatever that need stand in the way of the scheme. Of course there is the difficulty of want of harmony between *time* here and *time* on the other side of the Channel. That is, assuming that they did not follow and adopt it.

538. You mean St. George's Channel?—Yes, The question appears to me to be largely a practical one, and if the railway companies and large employers of labour would express their views on the proposed Bill—I should myself attach immense importance to what people of that class say—my position being, as I have already explained, that I do not see any scientific objection worthy of weight against the admitted benefits of the scheme, if those who are most concerned in the transit business of this country are disposed to acquiesce in it. Of course, there are multitudes of points that will have to be considered. I happen to be the scientific adviser to the Commissioners of Irish Lighthouses. For instance, lighthouses are arranged according to law. The law says that the lights must be lighted at sunset and put out again at sunrise, and on Islands and remote places the lighthouse-keepers have no means of regulating their clocks except by sundials. Well of course we are already acquainted with the equation of time. They have to apply it to their sundial, but now there will be a new variable equation of time which, assuming that Mr. Willett's proposal be passed, will have to be attended to, because the hours at which lighthouses are lighted is of very great importance. I have no doubt everyone in their own sphere will see many other difficulties, but I do not think, myself, that they are insuperable; and considering the enormous advantages that this Bill would offer, I do not think that the difficulties, so far as I have been able to estimate them, ought really to weigh against the immense advantages.

Chairman—continued.

539. Have you any opinions to offer as regards the objections raised by Sir David Gill in his letter to the "Times" yesterday, in which he thinks that the partial and gradual alteration of the hour of the clock would constitute an intolerable grievance?—It would constitute some trouble, I daresay, but I am not very particularly concerned as to whether the advance is made in the steps that Mr. Willett has proposed, or in a larger step, so long as it is made. That is, as I think, a question really for railway companies. I admit of course, what my friend Sir David Gill says—and I know no one in the world has taken more trouble, or has had a more intimate acquaintance with the matters than he has, but I cannot see that it would necessarily cause any very great amount of inconvenience.

540. Now in Washington, the interval between sunrise in midsummer and midwinter is about two hours and 40 minutes, is it not?—That is so.

541. What is the difference in England owing to its greater latitude?—It is upwards of four hours.

542. Four

Chairman—continued.

542. Four hours and 20 minutes, is it not?—Four hours and 20 minutes—yes,—between sunrise in June and sunrise in December. The only necessity for making that remark is something of this kind: We may naturally ask: Why is it that we have adopted these hours that we have practically found convenient for our daily life? Most of us breakfast, say, at half-past eight in this country, unless we are compelled by exigencies to adopt unusual modes of life. If we look at it in that way, we are at once struck with the fact that in America—Washington, or Philadelphia, or similar latitudes—you will find the people there will be breakfasting an hour earlier than we do habitually, and if you come to ask why that is, it is evident the reason is that we have adopted half-past eight, because that is the earliest hour at which all the year round it is daylight. We can maintain the same hours throughout the year without the necessity of using artificial light at both ends of the day. If you go to other latitudes, such as Philadelphia, or Washington, or New York, you will find the people fix their hours an hour earlier, simply because it is light at half-past seven all the year round.

543. In some parts of America?—In all the parts you are likely to go to, because the latitude where we are now is in Labrador in America,—practically in Arctic places; but the chief cities in America are more like the latitude of Rome, and that makes all the difference, because it is always daylight at half-past seven every day in the year.

544. Half-past seven?—Yes, in winter. In Washington the sun rises at 20 minutes past seven in the morning in the middle of December; here, of course, it is 10 minutes past eight—practically an hour later; then their hours are fixed in that way.

545. So that there are three different hours in the United States of America—West, Middle, and East?—There are, but of course that is a matter of longitude, and if I may say so, that does not really concern us now, because it is the latitude question—that is the one that is at issue in this particular matter.

546. Do you mean it is automatic,—that it does not involve any constant interference—any arbitrary interference—as suggested by Mr. Willett?—No.

547. It is a fixed automatic change in the time?—Yes, by the longitude of course.

548. Now I think the Committee would like to know whether you disapprove of a permanent alteration of the clock by one hour, as has been suggested by some of the witnesses?—Certainly; that would be of no use whatever.

549. That would be of no use, you think?—That would be of no use whatever, for the simple reason that, suppose we altered it, by an hour as suggested, it would mean that what we now call half-past seven would be half-past eight.

550. Yes?—But we should not have daylight. Artificial light is necessary, but we practically object to use artificial light at both ends of the day. We do not want to have breakfast by artificial light, unless we are compelled to.

551. Your objection would be met, would it not, by making the alteration for only six months of the year?—I do not see any insuperable difficulty in doing it that way, but, as I say, it is a practical question. If the railway companies could arrange their hours so as to comply, I do not see that there would be any particular objection.

Chairman—continued.

552. As between the alteration of the hour and the piecemeal alteration suggested in the scheme, how does your preference lie? Which would you prefer?—Well, personally, I really do not think it makes much difference—I would prefer what would best suit the railway companies—but the alteration of the hour would have the advantage, certainly, that it would lessen the difficulties about Continental time, and so for that reason I should prefer it.

553. For the United Kingdom?—Well, I do not see that it would make any great difference to us in the United Kingdom, except in the case of business people and employers of labour. I do not know what their views might be in cases where there are night shifts, and whether the railway companies would find it possible to push on all the trains suddenly in one hour of the day; I do not know. It might squeeze out certain trains, and it might make other difficulties; but it is a matter entirely for the traffic managers to say whether it could be done or not.

554. What is the difference between English time and Irish time?—25 minutes.

555. Would the adoption of this proposal prejudicially affect the discrepancy which already exists?—No, that is a question of longitude; that would be just the same.

556. The difference in latitude is, in your view, the main thing to be considered in this scheme?—Yes. It is that which causes the disability.

557. May I take it that our latitude, roughly, is from about 55 degrees north all round the northern hemisphere, and travels through East Labrador, the North of Canada and Siberia?—Yes.

558. And Norway?—Norway is rather more northerly.

559. May I take it that all those countries are mainly agricultural, so far as they have trades and occupations?—Yes, I suppose that is so.

Mr. *Pearce.*

560. The point I am thinking of is this: whether this proposal would affect other countries in the same latitude, nearly so much as it would affect Great Britain?—Well, so far as it is an advantage to us, it would be an advantage to every country along those latitudes.

561. But more here?—Oh, not more than here. It would be precisely the same on similar latitudes all round the world.

562. I was thinking of the occupations of the people of those countries?—Yes.

563. Do they not already govern themselves very much by sunrise?—I suppose they do; but I am afraid that is going into questions that I would not be competent to answer.

564. There is a vast population here of manufacturing people?—Yes.

565. And they are a much larger proportion of

Mr. *Pearce*—continued.

of the population than in any other similar latitude?—There is no doubt about that.

566. Therefore, having regard to our manufacturing conditions, and our climatic conditions, it affects Great Britain more than any other country—this question?—Yes, no doubt it does.

567. The climate of Great Britain, having regard to its northern latitude, is exceptionally mild?—It certainly is so; it is the mildest place round the whole parallel.

568. In answer to Sir Edward Sassoon, you said that you had in your mind the St. George's Channel with reference to some difficulty?—Yes.

569. But had you not also in your mind the channel between us and the Continent?—Oh, certainly—yes.

570. Now as regards lighthouses, with which you are concerned; the lighthouses are worked by sunrise and sunset?—They are lighted at sunset and extinguished at sunrise.

571. Therefore the alteration of the clock would not affect them at all?—No, it would not, except that there are rules issued to lighthouse keepers to light at certain times, and the times are given by their clocks, of course, and those times are based on sunrise and sunset.

572. Those times are intended to represent sunrise and sunset?—Yes.

573. You have given us the difference of time between Washington and London, in point of summer variation, as 4 hours 20 minutes in England, and 2 hours 40 minutes in the latitude of Washington?—That is so.

574. For our purpose we must double that, must not we, as representing the extent of daylight—that is to say, here we have eight hours or rather more extra daylight in summer?—Yes.

575. And in Washington they have only four or five hours; is that so?—What I was speaking of was the range at Washington between sunrise in midwinter and sunrise in midsummer. The difference between the amount of daylight of a midsummer's day in London and a midsummer's day in Washington is about two hours only.

576. Yes, that may be so; but I am speaking now of the difference between winter and summer daylight in our country?—Oh, yes.

577. Now here the difference is unquestionably, I think, eight hours (or rather more) longer daylight in summer?—Yes.

578. Longer than in Washington?—I will just see in one moment.

579. I think it is about double?—It would be about double.

580. About four hours, or something like that?—Yes.

581. Between four and five hours?—Yes, about that.

582. What is the latitude of Washington?—39° North latitude.

583. It may be convenient to get it on our notes?—I take it it would be about that.

584. The variation in daylight on the Equator is very small throughout the year, is it not?—Practically nothing. The sun rises at six and sets at six.

585. But from the Equator the difference gradually increases northward or southward up to the Pole?—Yes, of course, up to the Arctic regions.

586. Take the Arctic circle as the limit of our inquiry. We need not go beyond that. That is six to six, is it not?—We need not go beyond the Arctic circle.

587. There is a difference even in these Islands of 17 hours daylight in Scotland, which would be affected by this Bill?—Yes.

588. As compared with the winter daylight?—Yes.

589. Which is only seven hours?—Yes.

590. Therefore, the whole conditions of these Islands and the mild climate and of its geographical situation and latitude make a Bill of this kind and the using of summer daylight practically desirable with reference to the whole of the rest of the world. Is that so—except, perhaps, France?—Well, of course, the adoption of it would give the latitudes resembling ours the same convenience that it gives to us.

591. Now I will take you to another point upon it. The hours of daylight that have been referred to a good deal in this controversy are purely longitudinal arrangements?—Certainly.

592. They have nothing to do with the question of latitude at all?—Nothing whatever, no.

593. Do you know what the international agreement is which fixed them?—It has been settled for a long time—gradually one country has fallen in with another; it has arisen, of course, from the British Admiralty primarily fixing the meridian at Greenwich; then other nations have found it convenient to adopt the Greenwich meridian for purposes of navigation.

594. You know that the Greenwich mean time is fixed by Act of Parliament in this country?—Yes.

595. By the Act of 1880?—I suppose so.

596. The very Act which made the Dublin mean time the standard time for Ireland?—Yes.

597. A difference of five-and-twenty minutes; is that so?—Yes.

598. Now I suppose you would feel, as a scientific man, that it would be an extremely unsatisfactory thing to abandon the Greenwich meridian?—Oh, yes, that would be inconceivable.

599. It would be inconceivable?—It would be inconceivable.

600. One of the suggestions that have been made by some of our witnesses, who would not have the scientific rank that you have in the matter, is that we should use mid-European time here in England. In your opinion, would that be an abandonment of the Greenwich meridian?—I could not think of that for a moment; it would, of course, be an abandonment of the Greenwich meridian; I could not entertain that for a moment.

601. No, you could not entertain that for a moment. Then, if that is so, we are tied down to a local variation to suit our latitude; that is to say, we may make an alteration with our clocks in the summer time for our own convenience without interfering with the Greenwich meridian, or any of the international arrangements that affect it?—Well, I think we do interfere with them; but my point is that the amount of interference

Mr. *Pearce*—continued.

ference involved would not be weighty in comparison with the advantages gained.

602. It would be a purely local matter, would it not?—I think it would. I do not see why it should be more than a local matter.

603. Confined to these Islands?—Yes, I should have thought so.

604. Have you thought about the exact terms of the Bill—as to the amount of daylight that we should secure?—Yes.

605. I am only anxious to get this sort of thing from you?—Yes, that is right.

606. Have you seen this diagram. I want to trouble you with it for a moment (*handing same to the Witness*). Now, having that in your hand, do you know that the Bill itself proposes to make a short hour in the Sundays in April?—Yes, four Sundays—40 minutes.

607. And it proposes to make a long hour in four Sundays in September?—It does—yes.

608. Looking at that diagram, is the effect of the Bill to increase the use of summer daylight to the amount shown on that red patch. Is that roughly right?—Yes, it is.

609. Then you see the red line to your right?—Yes.

610. That shows the variations made in the hours of leaving off work by the Bill?—It does, yes.

611. In your opinion, as regards the exact mode proposed in the Bill—whether it is a 20 minutes' variation or any other—is that mode of doing it (legislatively, you know) a proper mode? Can you conceive of any other mode?—Well, there is the mode of advancing it by an hour.

612. Yes. I am not thinking of that?—Of the actual 20 minutes?

613. I am thinking of the actual form of the clause. The actual form of the clause is that there should be a short hour in one month and a long hour in another month?—Yes.

614. Now, whether you make that one hour by itself or an hour-and-a-half or an hour and 20 minutes in the aggregate, in the form of the clause in the Bill, is that suitable, according to your view?—Yes, I think it is.

615. To accomplish the particular purpose?—To accomplish the particular purpose gradually.

616. Greenwich time, as we say, must not be interfered with—Greenwich mean time—the meridian?—The standard mean time at Greenwich is, of course, not to be interfered with.

617. Does not a clause of the Bill provide that "Greenwich time, as used for the purposes of Astronomy and Navigation, shall not be affected by this Act."?—I understand that, of course.

618. Would it be convenient to put in, for the purposes of international agreement, "The use of the meridian," or some such amendment as that?—I think it would be sufficient as it stands.

619. You have noticed that the Bill is to apply to Ireland—you see no inconvenience in that?——No.

Sir *Walter Nugent.*

620. I think you said, with regard to making a permanent change of one hour, that you would not approve of that?—I think the effect of making a permanent change of one hour would not realise at all what is desired, because the tendency of everybody then would be to change the hours of all their engagements and thus leave matters where they are.

621. Do not you think the fact of our not taking advantage of the daylight in summer at present is purely a matter of habit and custom, and if we were to make a permanency, adapted to summer, do not you think the people would arrange in winter so as to carry on their business to the best of their convenience?—I do not think that that could be recommended. That is my view of it. People would gradually alter their hours, and they would not have the advantage of retaining the fixed hours which is one of the great objects and advantages of the Bill.

622. You see the great objection to the change is the constant change of the clock—the change first in the spring and then the change in the autumn?—Yes.

623. If it was one permanent change, that, would it not, remove a great many objections? If it is purely a matter of custom and habit, if that habit was once changed, then in all probability people would adapt themselves to it. You would not take that view?—No, I am afraid I do not agree to that.

624. You think they would be more likely to accept the idea of the dual change, the change in the spring and the change in the autumn?—I think so.

625. And you think that would be more advantageous?—I do. I have no doubt about it.

Mr. *Richards.*

626. Do you think that this matter then is merely a matter for railway directors and manufacturers?—I do, I think it is very largely for them.

627. And although you have given the reason why the breakfast hour is taken at half-past eight, owing to the fact that it is customary to do it in the winter months, you would not be surprised, I suppose, to learn that in some parts of the country the practice is made of starting work in the factories at 6.30 in the morning in the summer, whereas they start at eight in the winter?—Yes.

628. And during the winter months, when the factories start at eight, the people have breakfast before they go to work?—Yes.

629. That is the manufacturing standpoint, which affects manufacturers very largely, because they want as many breaks in the day's work as possible; it means money to them; as a consequence they do not care about meals on the factory premises?—Yes.

630. In the winter months they start at eight o'clock?—Yes.

631. That means that the operatives would have breakfast at 7.30?—Yes.

632. Then in April they jump to an hour and a half earlier—they go to work at 6.30—I do not know whether they put the clock back or what they do with it, but they carry out the custom?—Yes.

633. Then they do not breakfast until eight, therefore

Mr. *Richards*—continued.

therefore although they get up an hour and a half earlier in the summer, they breakfast one hour later?—Yes.

634. I only put that question forward to ask you whether you do not think that it is custom very largely which brings about this great variation at the present moment?—Well, I suppose it does to some extent. I have been in America several times, and so far as I know, the people living on the Equator where the sun rises at six, and sets at six, habitually get up and breakfast soon after six all the year round, and judging from that and a few other places, I am tempted to think it is the general view that people generally (I am not speaking now of those working unusual hours, but ordinary people) regulate their hours so that they shall have a constant hour for getting up and beginning their day's work, but what that constant hour is, depends upon the fact that they do not want to use artificial light in winter at the beginning of the day.

635. And you see no inconvenience in that?—I do not. Astronomically I see great inconveniences, but I do not see that they weigh against the advantages.

Mr. *Holt.*

636. It is quite clear that the object of this Bill is to make people get up earlier in the summer and to go to bed earlier. That is the object?—Yes, it is.

637. Why should not they do it of their own accord?—Well, I do not know. I think they would do it if they felt that everybody else was going to do it too. I suppose one difficulty about getting up early now is that business people do not find that the banks are open. They open at statutory hours, and the railway hours are arranged according to that; but if all occupations and interests were to be similarly affected, I think the change could be made quite naturally.

638. For instance—suppose you take any trade—any large trade you like to mention—for instance a trade like (we will say) The Stock Exchange; now there is nothing to prevent the Stock Exchange (they have regular hours) by a resolution of their own fixing the business hours an hour earlier in the summer than in the winter. There is nothing to prevent that, is there?—I do not suppose there is, but if the bank opposite had not done the same they certainly would not find it convenient to do it.

639. Quite so. But after all, I suppose there would be nothing impossible in the bank opening earlier?—I suppose not. It would want an Act of Parliament, perhaps, but I really do not know.

640. If that could be done that would be a much simpler and cleaner way of obtaining the desired object than the alteration of the clock, would it not?—There is no doubt it would, if it could be done.

641. If it could be done?—If it could be done, and if the railways would follow suit also.

642. You do not think that the existing hours have been gradually adopted because on the whole they are the most convenient to the majority of people?—Well, that is rather a difficult question to answer. They are the most convenient to the majority of the people in our latitudes. If you determine to keep constant hours or keep your hours constantly fixed then they are the most convenient, but the advantage of the proposed modifications would be that, while you would still keep your constant hours, you would have the advantage of more daylight.

Mr. *Holt*—continued.

643. Perhaps; but do not you think that there is such a thing as having too much daylight?—Well, you know, that is a queer thing to ask an astronomer. You know daylight is a mistake altogether from his point of view.

644. But apart from your special industry, which we quite agree is seriously injured by daylight, do not you think that where people have a very long period of daylight, such as you get in the extreme North of Europe—such as Spitzbergen or wherever the place is—people find they have too much of it?—I do not think so. I know when I have been in Norway I have greatly enjoyed the long daylight.

645. You think you cannot have too much of it, apart from astronomy?—Oh, no.

646. You were telling us just now that on the Equator people get up at about daylight?—Yes, so I understand.

647. Well that is a matter of experience, but I think in those districts it is also usual for most people to sleep in the middle of the day, is it not?—I daresay it is. It is complicated, of course, by the question of heat.

648. The question of heat complicates it very much?—Yes.

649. My experience of life on the Equator—which was not very long, about three months—is that the people do not go to bed there any earlier than they do here; they have a siesta in the middle of the day, and you get considerably less daylight in places where you get up at six o'clock in the morning than you do here?—I merely mentioned the question of the Equator to illustrate my point that our hours are regulated mainly by arranging so that all the year round we should be able to get up at the same hour, but always in daylight; we push that hour as far back as we consistently can. We cannot push it earlier than half-past eight here, but it can be made six o'clock on the Equator.

650. You think the idea of altering our time by making it an hour earlier all the year round would be ridiculous?—I think it perfectly futile. It does not meet the point at all.

651. The only thing that appears to you at all desirable is to obtain an earlier hour of rising in the summer than in the winter?—That is the point.

652. That is the point to be attained?—That is the point to be attained.

653. Would you think it preferable to obtain that by an alteration of the clock or to obtain it by some other method, such as altering bank hours?—Well, that is more a question for legislators as to what can most effectually bring all these interests into conformity. The legislature, I presume, can alter bank hours, and certain other hours are also fixed by law, but

Mr. *Holt*—continued.

but I do not know how far their power extends in forcing such hours on the public generally.

Chairman.

654. What is the difference between sidereal time and Greenwich time. Is it a fixed, or is it an arbitrary and a shifting standard ?—Sidereal time gains four minutes on mean time every 24 hours.

655. Now do you consider that the Astronomical Theorems would in any way be affected in regard to the practical application and arrangements of every day by this Bill ?—I do not think it would produce any effect.

656. As regards navigation ?—Of course we have already excluded navigation, by saying that the standard time should be followed, or that Greenwich time is to be followed as it is at present all over the world.

657. So that no inconvenience could accrue, unless some mistake were made ?—I do not think any considerable inconvenience could accrue.

658. No inconvenience can possibly accrue, unless some mistake is made as regards the confusion between the contemplated time and the standard time ?—Yes, that is so.

659. With regard to the question put to you by Mr. Holt, that some kind of arrangement might be made without resorting to legislation as regards lengthening the hours of daylight, do not you think that past experience has shown that no universal consensus of opinion could be obtained on a matter of this sort without resorting to legislation—take Sunday hours—take bank holidays ?—Yes.

660. In both those cases it was found absolutely imperative to have recourse to legislative methods, in order to obtain universal application to institutions. Is not that so ?—I am sure it is.

661. You do not consider it likely that without legislation any alteration affecting large institutions could possibly be obtained ?—No, that I feel quite sure of. It could not be done without legislation.

Mr. *Pearce.*

662. That is the very question I was about to ask. Sir Walter Nugent is not quite sure (I think I am) of your view that if we had an "hour" permanent alteration all through the year, why you think it would be practically doing away with the Greenwich meridian ?—It would be quite futile, because it does not really touch any of the difficulties that Mr. Willett's scheme is calculated to remove.

663. I know that, but you notice that if we were to adopt Berlin time—that is to say, one hour only—that would shift our noon—or not "noon," but the hour of 12 o'clock to one o'clock ?—Of course it would.

664. Now you gather what I mean ?—Yes.

665. What I mean is, that such an alteration as that would be adopting for England Berlin time, and would, so to speak, put an end to our use of Greenwich time altogether ?—Of course it would.

Sir *Walter Nugent.*

666. You do take that view ?—Yes, I do.

667. You did not say that to me ?—I am afraid I could not have quite apprehended. I certainly do take that view.

668. You see the view I put to you was that this question of not using more of the daylight in summer is purely the result of habit and custom, and if you alter the clock (one hour, or whatever it is), the habits and customs of the people would very soon adapt themselves. To shorten daylight in winter without moving the clock backward or forward ?—I think the possible alteration of the whole hour, such as is described as being perpetual, would really be of no use whatever.

669. Do you think it would make any difference as regards changing the meridian ?—The meridian of Greenwich would still be the fundamental meridian for standard time, but it would be different for British time.

670. I do not see how it would ?—When the sun is on the meridian at Greenwich in summer, it would be one o'clock, if such a change were made.

671. How would making a single change affect it any more than making it a double change ?—The change proposed now would not alter the meridian, because for all purposes, where the meridian of Greenwich comes in at all, it is proposed to retain standard time, so that these changes, such as Mr. Willett's scheme, or others that have been mentioned as far as I understand, are merely for having a local time for the convenience of the country—standard Greenwich mean time for our ships, and for the ships of all the world.

672. Quite right. If by making the change in the summer and the winter, you say it would be only adapting it locally. If you only made it once in the summer and let it stand all the year round, it would be the same thing so far as it affected the basis of time on the meridian, 12 o'clock ?—Of course, if we altered it, say to Berlin time, the sun would always come on the meridian at one o'clock.

673. We will not mention Berlin time ?—If the meridian from which our time is taken were shifted an hour eastward it would make the sun come on the meridian here at one o'clock instead of 12.

674. It would make really no difference, so far as the meridian is concerned, whether it was done at once, or on the other principle ?—The meridian of Greenwich is unaltered of course.

Mr. *Pearce.*

675. I should like to have that point clear. The summer daylight that we are thinking of is about four months out of the 12 ?—Yes.

676. And to make a change of one hour for the sake of four months, to extend all through the other eight months, to which it does not naturally apply, is a thing which, as I understand, you think would be futile ?—It would be quite futile. That is my view.

(*The Witness withdrew.*)

Sir DAVID GILL, K.C.B., F.R.S., LL.D., D.SC., called in; and Examined.

Chairman.

677. You are His Majesty's Astronomer at the Cape of Good Hope?—I have been; I have retired.

678. Formerly you were. Do you hold any appointment now?—No, I have retired.

679. Since when?—Since February of last year. I am also a Fellow of the Royal Society, President of the British Association, and a member of most of the principal European and American academies of science.

680. Have you any special experience in connection with the shifting of clock time?—Very extensive,—I suppose much more than most people. May I say a word?

681. Certainly?—I think, Sir, if you will allow me, a great deal of the difficulty which arises apparently in the minds of the Committee and of the public, is a misunderstanding as to what time is. For example, Mr. Willett, in a letter to the "Times" this morning, says that I mistake altogether the object of the Bill. It is not to make people get up earlier in the morning, but to save daylight. Now if you shift the time of a clock—change, what somebody calls "a quaint expression" on my part, the origin of time in the way proposed, you are going to make them get up earlier in the summer, and keep the normal hours in the winter. There can be no question about that, and the great question before us and before the Committee is first of all:—Are people to be cheated into getting up earlier in the morning, or are they to get up honestly earlier? That is the whole story. Now, as it is, we grant—as I am quite prepared to grant—that it would be a very good thing if men did get up earlier in the morning, and so secure the benefit of longer daylight. There are a great many people who would not, however, and of course we have arrived practically at our present hours of getting up and going to bed by convenience; but there are people who seem to think that you must go to the office at 10 o'clock, or if you are a workman, you must go to work at six or seven, or whatever it may be—that is not really the case. The simple cure appears to me to be this; you have either to get a consensus of opinion or legislation, by which the hours shall be made earlier in summer than they are in winter, and I wish, publicly, as one who had had more experience than almost anyone else on the shifting of time, to state that when you do shift the clocks at any particular epoch, you create for a day or two a terrible amount of confusion, notwithstanding the utmost care that is taken in the way of preparation. For example, at the Cape we circularised all the Magistrates, all the leading people, all the clergymen. In 1892 it was announced in every church that the following Sunday there would be a 16 minutes' change, and then, 11 years later, that there would be a further half hour change; and, as I pointed out in my letter to the "Times," notwithstanding all the care of preparation there described, there was on both occasions a fearful hullabaloo, people were late for trains, and so forth. Well, now imagine what it would be if eight times a year this sort of business were to go on. I give you special evidence upon that, because no one has had as much experience as myself on the subject, and I tell you honestly, that when Mr. Willett's scheme was first brought before me, I paid no attention to the letters, because I thought that they really could not be written by anyone of importance, or who had thought much of the subject, or that they must have been written by somebody who did not know much about the subject. I am sorry to say that; and it was not until I saw that the matter had been seriously taken up in Parliament that my attention was called to it, and I wrote a letter to the "Times"—that is the long and the short of it. I think Mr. Willett is so very persistent, that he has got hold of my friend Sir Robert Ball, and rather bamboozled him.

Chairman—continued.

682. I think, Sir David, you had better confine yourself to opinions that are not personal?—Very well; I think if Sir Robert Ball was asked the simple question whether it would not be simpler if a consensus of opinion could be arrived at about starting work earlier in the morning in the summer season, without shifting the clock, he would agree that it was a simpler and more practical plan. For my part, I feel certain that it would be; but if you say that it is impossible to do it by arrangement, of course it could only probably be done by Act of Parliament But Acts of Parliament follow generally the desire of the public, and if the public would request it, and if the matter is brought before the public, probably sufficient influence would be brought forward to bring such a change about, and make it a possibility for an Act of Parliament to be passed.

683. I would like to ask you whether the circulars to which you have alluded as having been sent out at the Cape were the outcome of legislation, or the initiative of any head of a Department?—It was the outcome of legislation; but, of course, there was a great deal of preliminary discussion—correspondence in the newspapers, and so forth—and Ministers offered to pay my expenses to travel to different centres, and to teach the doctrine of the new time, and what its results would be, and so forth.

684. Was it to be a permanent arrangement?—That was then, of course, a permanent arrangement. It was a permanent shift of the origin of the civil or legal time of the colony.

685. May we take it that it has since been satisfactorily established?—It was established from the moment. There was an Act of Parliament passed, and people saw that it was a practicable thing.

686. I thought you said just now it created so much confusion?—Naturally it created confusion for a few days.

687. That is obviously inherent in any alteration?—But the present Bill proposes to make an alteration eight times in the year.

688. May we take it that you are irrevocably opposed to any piecemeal alteration of the clock?—Yes, or any alteration of the clock at all. I think there is no necessity to alter the clock at all, but simply to state that the business hours will be nine instead of ten, and so forth; and you will find here in this publication of Mr. Willett's an

Chairman—continued.

an admirable instance of what was done by Messrs. Crosfield: "My firm, Joseph Crosfield and Sons, Ltd., Warrington, most cordially welcome Mr. Willett's proposal; indeed, we have done something in that direction already. Our office hours formerly were from 9 a.m. to 5.30 p.m., with the usual hour for lunch. A few summers ago we arranged to open the office at 8.30 a.m. and close at 5 p.m., in order to give the staff (over 100 in number) as long a summer evening as possible. This arrangement was only intended for the summer months, but, at the urgent request of the staff, it was made permanent."

689. Surely all that comes back to the question which I put to Sir Robert Ball just now—whether it would be possible to obtain a universal adherence to any scheme of this sort without legislation?—No; but, then, if the same amount of energy as Mr. Willett has exhibited in promoting this particular Bill were put forward so as to create public opinion upon the subject, legislation then might follow upon lines that people would recognise; but I assure you that I have met hundreds of thinking men who have said they were so glad to see my letter in the "Times" opposing (what they called) "this wild-cat scheme."

Mr. *Holt*.

690. I think you had two alterations of time at the Cape?—Yes; we first altered it an hour and a half, because Ministers were afraid to alter it three-quarters of an hour. They altered it 16 minutes in the first place—that is to say, to suit the middle meridian of Cape Colony, which was very nearly an hour and a half east of Greenwich. Then, later on, when all the railway systems throughout the Colony united in 1903, after the war, the people of the Transvaal and Natal naturally said: There is an international agreement by which the railway times throughout the country shall be at even hours east or west of Greenwich. Our natural meridian is much nearer to two hours than to one, and one and a half has no international agreement; why shall we not adopt two hours?—and I strongly urged two hours originally, and it was adopted, and has been carried.

691. So you have had two experiences?—I have had two experiences of this kind.

692. And has the second caused much more confusion than the first?—Oh, much more, because it is a bigger change.

693. And, of course, it has had the object of avoiding confusion altogether—theoretically?—Yes, theoretically.

694. I want to ask you another question. You have just read to us out of a book the example of a firm who voluntarily altered their hours from 9 a.m. to 8.30?—Yes.

695. And, as far as you know and can see, there is no reason apparently why everybody else should not do the same thing, if they wished to do so?—No, not in the least.

696. In fact, I know in my own experience there are many firms who do carry on business at different hours?—Yes.

697. And you probably realise that a great deal of business in this country is done with the United States of America?—Yes.

Mr. *Holt*—continued.

698. And you, of course, also see that there are only certain hours in the day during which it is possible to do business with America on the same day?—Cable business—exactly—obviously.

699. Now I think I am not stating it wrongly if I say that those hours are between 3 and 5 p.m.?—Roughly, about that.

700. Roughly speaking?—Yes.

701. Now if you were to alter the clock here, in the way proposed, it is quite clear that those hours in the summer would be practically extinguished, unless the Americans did the same thing—that is to say, five is the closing hour, and you would under this Bill close at 3.40?—Yes, probably that would be so; but those are questions that can only be settled by experience.

702. Under the Bill, you would close at 3.40 in the summer if you kept the same nominal hours?—Yes.

703. Therefore the whole prospect of doing business with America on the same day, without risking the fluctuations of the market, would disappear, unless the people kept their offices open longer than the nominal hours?—That is so.

704. Unless they kept their offices longer open than the nominal hours, the whole object of the Bill would be defeated?—Apparently—certainly so.

705. Therefore the efficacy of the proposal entirely depends, not upon the legislation, as you put it, at all, but upon people actually accepting it; because, after the Bill is passed, there is nothing to affect anybody making their office hours anything they please?—Quite so.

706. And if they made their office hours start an hour later and end an hour later than at present, the whole Bill would be waste paper?—Absolutely.

707. And at the same time it is equally possible for them to make the object of the Bill effective under the present state of things by altering their hours?—Exactly—certainly so.

708. In fact, I put it to you that this proposal of getting people up earlier in the summer can have no efficacy at all unless people agree to do it?—Certainly.

709. Whatever the law said, that would be so?—You may make clocks the origin of time, but people can fix their hours at what they please.

710. If they do not choose to keep the same nominal hours after you have altered the clocks, the whole object of the Bill is defeated?—Certainly.

711. And really the possibility of carrying out this alleged reform respecting getting up earlier in the morning will depend upon the general mass of people being willing to do it?—Certainly.

712. And nothing else?—And nothing else.

713. You, therefore, probably agree with me that if this is to be effected, it can only be done by obtaining a general consensus of public opinion?—That is so.

714. Legislation—unless it may be necessary with regard to banking hours themselves—has nothing to do with the point; it is really a waste of time?—The only thing to be said in that way would

Mr. *Holt*—continued.

would be that people are very stupid, and have got a wrong idea. "The public," some wise man once said, "is an ass"; they get into the habit of observing certain hours. It may be so, but ultimately there is nothing at all to alter the hours. If you change the time half an hour forward, people will suit their office hours to it, in a great many cases, by putting their time back, and so on.

Mr. *Richards.*

715. I suppose you are aware that it is not the offices that run the country. It is not the question of office hours that is going to benefit the majority of people in this country?—The majority of people—oh, no—not the office system. I understand absolutely that the great majority of the people are working-men.

716. That is the point, and if it is possible that we can get them up earlier in the morning, they will use less artificial light?—Absolutely.

717. And more, it would add to their health and longevity?—Yes.

718. Of course, you are aware that in the factories the hours are regulated by Act of Parliament for women and children?—I am not aware of that.

719. Yes; certain hours they will not allow them to work beyond?—Nominal hours?

720. They will not allow them to work beyond?—A certain number of hours you mean?

721. A certain number of hours, and up to a certain time; in fact, they must be "out" before a certain time—in other words, they will not allow them to work overtime?—Well, how does that affect the question of this Bill?

722. I think it does, because it is a question of daylight?—The whole question is connected with *time.* Of course, that might not be effective with this new Bill. That is a possible difficulty that I had not considered, because I did not know it.

723. Then, again, when you say, "If you could only get people to agree"—well, as regards getting people to agree, I think the House of Commons can generally read public opinion better than individuals playing off their own bat. This large concourse of working-class people—no less than 15 millions—ought to be considered?—Most clearly.

724. And, as a consequence, it is desirable if you can to make a "regulation" breakfast hour—or, I should say, a "regulation" dinner hour. A woman with a big family, who is the only servant in the house, must be considered; she cannot employ others; she does not want to have to get four or five dinners in the middle of the day; the children coming home from school, the father coming home from the works, one girl coming home from one factory, and one from another. I want to say from my experience that our hours are regulated very largely by our family requirements. We have had an instance of employers who have attempted to put our hours back, and we have threatened to come out on strike rather than have our family dinner hour upset; but do not you think that if you could lead public opinion on to start work earlier in the morning and have an earlier dinner hour it would

Mr. *Richards*—continued.

be better for the whole of the working-class population?—Probably it would, and there is nothing to prevent it under the existing state of affairs.

725. My friend, Mr. Holt, mentioned banks. Well, we do not deal with banks—public-houses have more to do with us, keeping open so late at night. There, again, they would be induced, probably by the fact of Parliament assisting them, to close earlier?—There is nothing to prevent an Act of Parliament making it earlier.

726. Then you say that in Cape Colony you had two changes?—We had two changes.

727. Permanent changes?—Permanent changes of the clock—one in 1892, and one in 1903.

Mr. *Pearce.*

728. It took ten years to do it?—Eleven years between the two. The one arose at the time when the railway from Port Elizabeth was united with the railway from Cape Town, and the other after the war was finished, when the whole of the South African system was united.

Mr. *Richards.*

729. Which created a little confusion for the time being?—For the time being—for a day or two, or three; but you propose to change every week.

730. Just about as much confusion as is found on a Good Friday morning when some of our operatives want a drink and cannot get one?—I have not much experience of that.

731. When you mix with people you hear people say, "This is very, very awkward," and so on; but I do not know whether it is going to upset business?—People will have by the proposed Bill immense confusion, and there is no need for it, because you can have a much simpler plan.

Sir *Walter Nugent.*

732. I understand that you are opposed to tampering with the clock in any way?—Certainly, there is no need for it.

733. Suppose you had to choose between what you considered two evils—one of them the making one change of the clock by putting it back an hour permanently?—That would be of no use, because if you put the clock back for an hour permanently you would make most uncomfortable hours in the winter.

734. Do not you think it is merely a matter of habit and custom; the matter of people adapting themselves to shorter hours and short days in the winter. You have already told us that it is simply a matter of custom having your dinner at a certain time, and that it is no use one body of men making the change if others do not. It is no use, for instance, for the Stock Exchange to start earlier in the morning if the banks are closed?—Your question says, "Do you think it is any use to make one shift of an hour?" What is the object of that?

735. Basing it on daylight in summer instead of winter?—Do you mean one shift for good?

736. One shift for good—exactly?—And that we are not to change in the winter or the summer?

737. Basing it on the amount of daylight that we have in summer?—That does not "fit" the

case

Sir *Walter Nugent*—continued.

case at all. To make an alteration of the hours of work in summer, you do not require to alter them in winter for that purpose.

738. Did you find in South Africa, when you were a long distance from a railway, that they really did make the change? They had what they called "sun time," which was quite a different thing from railway time?—Oh, no! even at a long distance from the railway; men have had to catch trains. A great many of the Boer farmers have not clocks at all; they work away; they all start at sun time and shift it about in some way; they know how many hours it takes to get to the station; they guess it, and wait half an hour or so to be sure of being in time.

739. There is no such thing as "sun time"?—No, there is no such thing as "sun time"; of course there is what the astronomer knows as "apparent time" or "apparent noon."

740. In the west and south of America, they undoubtedly make changes to meet the longer day in summer and pay no attention whatsoever to time in the towns?—I think probably the Boer farmer gets up in the morning and turns his "blacks" out when he thinks they ought to go, and they come back at sunset. I dare say that is the case. There are no "work hours" there.

741. So that they really do there for themselves what it is proposed to do now by statute. Where they are not hampered by railways or modern customs they adopt their own ways?—I do not know that there is any one rule about it. They are a very haphazard kind of people generally, and they will do anything. The only objection I ever heard was that when we shifted the time first of all there was an old gentleman who would always come into church a quarter of an hour late, because he declared it was God's time and not the other, the curious thing being that the new shift of time was more nearly that of the meridian of his church.

742. They really adopted "sun time"?—Absolutely. I mean of course the people who have not clocks.

Mr. *Pearce.*

743. I think we are agreed that it is better to use the summer daylight if we can?—I think most people would agree to that. I do not do it myself, but I think I may agree with it.

744. Then it is only a question of how to do it?—Only a question of how to do it.

745. I understand you agree that the use of the Greenwich meridian may be adhered to in this country?—I certainly think that.

746. Now as to the mode of doing it—getting the people to use the summer daylight more—do you recognise that the law books are full of statutes regulating the nominal time of various kinds of trade transactions, for factories, public houses, banks, railways, and that a great mass of legislation is full of nominal time, do you recognise that?—I suppose so, nearly all with reference to "noon," which is not to be altered.

747. Of course "noon" is "meridian." "Noon" is not so much of the clock at all. You do not call 12 o'clock Greenwich "noon time" except by putting the two together?—Do not all

Mr. *Pearce*—continued.

the law books talk of "noon" on a certain day?

748. When they do, they refer to the time of the clock which is nearest to "noon"; for instance, if we say "11 o'clock in the forenoon" or, "12 o'clock at noon," we do not mean "noon," but simply "12 o'clock at noon." I will make it clear in this way. With regard to the "sun time," noon time is fifteen minutes ahead of the clock and 15 minutes behind the clock in the course of the year?—Yes, in the course of the year.

749. By "noon time" we mean "sun time," I mean in the law?—Do you mean "sun time" in the law?

750. Yes, when an Act of Parliament speaks of nominal time?—These are legal questions, on which I am not competent to give an opinion.

751. I want to ask your opinion about it. When an Act of Parliament says you shall open at 8 o'clock in the morning and close at 8 o'clock at night, that is by the clock?—Yes, I suppose so.

752. You will take it from me that there are a great multitude of that sort of cases in the law books?—Yes.

753. Now as to the mode of doing it, is it better to pass an Act of Parliament, or a great many Acts of Parliament, that all these times shall be altered in the summer, or is it better by one short Act like this to bring all these things into regulation?—But the times are here, and why change them.

754. I am asking you which you suppose is the better mode of doing it. We are aiming at the same thing, we are aiming at using summer daylight. Now, would you alter by Act of Parliament all the times of factories, public houses, theatres, and all the other places that are regulated by clock time—by an Act of Parliament drawn like this, or by an Act of Parliament applying to every particular industry throughout the country?—I would not alter the clock on any account whatever, for fear of making horrible confusion.

755. Surely the clock is only an instrument?—It is far from being only an instrument. If you are regulating everything by the clock, then by shifting the clock time about you are making confusion.

756. I rather gathered, from what you said just now, that there was no occasion to regulate our action by the clock?—When did I say that.

757. I understood you to say so in answer to Mr. Holt?—Whenever did I say so; there is no necessity to alter the clock.

758. You said there was no necessity to regulate action by the clock. We could all get up earlier in the summer if we chose?—Exactly, but not alter the clock.

759. Now as to the best mode of expressing common opinion, and so on: as regards these 15 million men that Mr. Richards spoke of, is not an Act of Parliament the best mode of expressing a common agreement?—Yes, but an Act of Parliament should not be made without the consent of the people to it.

760. We are not suggesting that that should be done. An Act of Parliament cannot be made without the consent of the people in this country, whatever

Mr. *Pearce*—continued.

whatever they can do at the Cape Colony ?—No, but you may in a great hurry get through an Act of which you do not quite fully see the end.

761. We have asked you to be good enough to come, and you have come, to prevent that, and we are going to look into it very carefully. By and bye, when the people have all agreed that it is better to use summer daylight, cannot it most effectually be done, as you have said, by an Act of Parliament ?—Most certainly.

762. If that were done, you would not call that cheating, would you ?—Not if it was fully explained.

Chairman.

763. You said just now that in matters of this kind it is best that legislation should follow, and not precede, any public desire for any change ? —Yes.

764. Will you tell me how it would be possible to ascertain accurately what public opinion would require in a case of this kind ?—For example, Mr. Willett here has got some two hundred and odd Members of Parliament to consent to this, without fully considering (and many of them, I am sure, have not fully considered), what it would mean to alter the clock eight times in the year, and the confusion which would be created thereby.

765. That is only choice of methods, but what I am asking is, how it would be humanly possible to arrive at any practical ascertainment of the public view as regards any necessity for a change of this sort. You said just now that, in spite of the 250 Members who have given their adhesion to this scheme, you do not think many of them have practically considered it ?—A great many have not, they are caught by the idea of saving daylight without the subsequent difficulties which, in my humble opinion, are certain to arise.

766. What sort of public manifestation would satisfy you ?—I am not a legislator or a Member of Parliament. I do not pretend to say how these things should be done.

767. You started off by saying that this is a Bill to cheat people into getting up early—compelling them to get up early ?—Apparently Mr. Willett denied that it was.

768. Do you think that if you afforded people opportunities of getting up early, that is to say, if they had anything to do, if they got up earlier that would be an incentive and an inducement to do it ?—Possibly, but people who have to do work must get up at the time it has to be done. I used to get up at very uncomfortable hours—three and four in the morning—to do astronomical observations that could be done at no other time.

769. Exactly, but is it not possible that the reason why people do not get up early in the morning now, might be because they have got the reasonable excuse that, if they get up, there is nothing for them to do ?—Quite so.

770. And that some sort of re-arrangement of time in this country would give an enormous stimulus and fillip to people to get up earlier, and get through their work earlier, and have more time for recreation ?—Get the employers of labour and the schools to open earlier in the summer, and the whole thing is done.

Chairman—continued.

771. The employers ?—The employers and the schoolmasters, and schools to open earlier in the summer time, get it done by Act of Parliament after you have sufficiently ventilated the matter.

772. What period of time would you think necessary for the ventilation of the matter ?—I think if you could manage to put the hours an hour earlier in the summer time.

773. You say it would have to be done by legislation ?—After the world generally—the people—had sufficiently considered it, if they are willing to get up at that time.

774. Yes, I quite agree, but what I am trying to get at, is your mind as to the practicability of arriving at this general consensus of public opinion before legislation can be undertaken. How do you propose that it should be done, by what sort of agitation or public manifestation, by which Parliament could consider itself justified in proceeding to legislation, because the whole thing is there. Your view seems to be that it might be done by voluntary arrangements and so on, that is to say by telling employers and schoolmasters that they ought to get up earlier ?—If, for example, the Government controls the schools, it would be quite possible to shift the time one hour forward.

775. That is only one branch. You have railway companies, you have steamboats, and one example you gave was banks ?—Quite so. The whole thing would be to ask people to advance their hours one hour in the longer day.

776. Do you know that past experience has shown absolutely, as regards the establishment of Bank Holidays, as regards the abstention from work on Sundays, and so on, that it cannot possibly be done ; that you cannot have a universal adherence to any arrangement of that sort unless it has legislative sanction behind it ?—Well, gentlemen, you are all Members of Parliament, you know what your constituents think, I suppose, and I should suggest, if your constituents are prepared to agree with it, that you make a law to shift all the hours an hour forward, shift all the office time an hour forward in summer, and so on. If you carry the present Bill you will not help matters at all if people will not follow these hours. That is the point.

777. You would give them opportunities of doing something if they did get up earlier ?—How, under this Bill, would you do it ?

778. By putting on the time when work begins. Take the case of a bank : if the law says that for banks the hour is nine o'clock instead of the hour being eight, according to Greenwich time, there is much more chance of the bank opening earlier than there would be if you left things as they are now. Do not you agree to that ? If in the mind of all the world, instead of being half-past twelve here it was half-past one, you would have been three hours or four hours at work instead of two hours or three hours ?—People accommodate themselves more or less to the sun, as you have very properly said, and the nominal hours of working, except where they are fixed by law, will certainly accommodate themselves again if you pass this Bill. People will say : " Oh, hang it ! there is not light enough in the morning ; we will

Chairman—continued.

will have breakfast half an hour later," and it will go on in that way. And the great point would be, if you would pass a law in some way—I do not say it is to be done, but that is the proper way—excite the public mind to it first; let it be gone about in the same persistent way that Mr. Willett has gone about this.

779. That is the particular object of this Bill. It is to stimulate and excite the public mind. There is no question of compelling anybody to open at eight who wishes to open at ten?—But you are going to practically force all the railways to shift their clocks.

780. No. In what way? There is not a word of it in the Bill. I am afraid you have rather insufficiently studied the provisions of this Bill. There is not a word of it. All the Bill says is that there shall be a short hour four weeks in April, and a long hour four weeks in September; you may follow that time, or you may have a time of your own?—It seems to me to be the most unscientific and undesirable method of going about the thing that I can imagine.

781. The method may be undesirable, but is the object desirable?—I do not get up myself, unfortunately, very early in the morning; I am quite sure that it would be better for me if I did.

782. Do not you think it would add to the economy to which Mr. Richards has referred?—To me it would be hateful, from the scientific point of view and from the practical point of view, to shift the clocks; and if you do not shift the clocks your Bill is not worth a pinch of snuff in any direction.

783. So that if a choice between some sort of alteration of time were given—assuming that by some extraordinary mental phenomena you were in favour of some alteration of the time—would you prefer the piecemeal alteration, or a six-monthly alteration?—I would prefer the six-monthly alteration, but not a setting of the clocks.

784. One hour?—I would prefer a six-monthly alteration, just as the railways alter their time tables.

785. How long would you prefer the alteration to be for—for what period?—Five or six months.

786. But an alteration of how much?—An hour.

787. An hour—a fixed hour in the summer months?—Give an hour in the summer months.

788. How would the passage of this scheme affect the South African time; how would it affect business hours between this country and South Africa?—The business hours of this country and South Africa? Cape time is two hours fast of Greenwich time at present.

789. Two hours?—Two hours; that is to say, the civil time of the Cape is two hours faster than Greenwich at the present moment.

790. Do you apprehend any considerable dislocation of business arrangements if this scheme were passed?—If the Cape were to adopt your proposed plan, it would be just making things far worse, instead of far better. In the southern hemisphere, where the seasons are reversed, we have the long days in December and the short days in June; and, of course, to adopt any such twisting about of the clocks to suit the corresponding times of England which are proposed in this Bill would make double the differences there in the wrong direction; it would never do at all.

Chairman—continued.

791. You are aware that the confusion that existed formerly as regards international arrangements was largely put an end to by the adoption of the even meridian hour?—It was the even meridian hour.

792. Do not you consider that that was an arbitrary arrangement; it was a shifting of the clock?—It was an arbitrary arrangement which has been found an exceedingly practicable one.

793. Precisely; and may not the same arrangement in the case we are considering be found equally expedient and practicable?—The arrangement of the Bill implies the shifting of the clocks. It implies it—I do not say it is done by saying that you shall shift every clock—but it implies the shifting of every kind of clock, and that is a most impracticable arrangement, because it will lead to confusion eight times in a year.

794. Then if it were done permanently your objections would be met, would they not?—I would not change the clocks at all.

795. But just see; they have had to change the clocks permanently in Mid-Europe?—What good would that do?

796. What good has it done in Mid-Europe, their changing their clocks and bringing them into harmony with Greenwich time?—They have not brought them into harmony with the Greenwich time; they have made them about an hour different from Greenwich time, so that if a telegram comes from Berlin at a certain hour the telegraph office here simply alters the nominal time one hour to show when it was sent from Berlin, and gives the corresponding Greenwich time straight away.

797. It is nevertheless the fact that the alteration in European time was based upon Greenwich time?—Certainly.

798. To the extent of an hour extra, Mid-European time, and two hours extra East European time?—The system extends all round the world, and in the same way.

799. And, generally, you consider that any shifting upon that basis would not be desirable?—It would upset a scheme that has been brought about quietly by the mere merit of its goodness.

800. Though it has been done in Europe successfully?—The hour meridian system has worked in Europe successfully, and in America too; it has nothing to do with saving daylight.

(*The Witness withdrew.*)

Professor ARTHUR A. RAMBAUT, M.A., D.SC., F.R.A.S., F.R.S., called in; and Examined.

Chairman.

801. You are Radcliffe Observer at Oxford?—Yes.

Chairman—continued.

802. And you were formerly Royal Astronomer of Ireland?—Yes.

803. And

Chairman—continued.

803. And Professor of Astronomy in the University of Dublin?—Yes.

804. You are still in the occupation of those posts?—No, I resigned in the year 1897.

805. You say here, "I am Radcliffe Observer"?—I am still Radcliffe Observer; I thought you referred to the Irish appointments.

806. I see you have given a long table showing mean Greenwich time at which the sun rises and sets at latitude 51, 53, 55 and 57 degrees?—Yes.

807. What is the object of that?—That is to illustrate a point which I see now is within the knowledge of the Committee—the extent to which the hours of daylight are wasted. I take, for instance, the case of a person in one of the lower latitudes in England, 51°, who rises at 6 o'clock and whose occupation is not over till 6 p.m., and even there he sleeps away in the morning almost exactly half of the sunlight hours available for recreation, whereas in the more northern latitudes, as the table will show, if he rises at 6 o'clock and ceases work at 6 o'clock, the sun will have risen two hours and three-quarters before he gets up, and will set two hours and three-quarters after he has ceased work; so that he gets only half the sunlight which he might otherwise have enjoyed.

808. Do you think on the whole that four steps of altering the clock by twenty minutes each afford the best method of bringing about the desired change?—I do. I think the abruptness of the single change that was suggested—that it should be made in one step of an hour—would render it very unpopular, and probably people would not adopt it. It would mean that the people rising at about 6 o'clock (the working classes more particularly, perhaps) would be asked, if it began early in April, to rise before the sun—to rise an hour earlier than they do now. Well, on the 1st April the sun will rise at 5.42.

809. They would be asked to rise at 3.42 if the hours of change were made?—No, those who rise at six would be asked to rise at five, whereas the sun would not rise until 5·42 mean Greenwich time. If they rose at the nominal hour of 6 o'clock, it would correspond to the present Greenwich 5 o'clock, and the sun would not be up until 5.42 by the same time; either that, or the change would have to be postponed till a later date of the year. If it were postponed till May ——.

810. I do not like disturbing you, but surely your objection seems to be rather based upon the view that this Bill is going to compel people to rise at a certain hour of the day. It does nothing of the sort. What it says is that you can get up earlier if you like—you can adjust the hour of your getting up, the light affords you an opportunity of getting some work to do if you do get up earlier. Do you follow that?—Yes.

811. My only point is to ask you whether you do not think that the change of a complete hour for six months of the year would in all respects be preferable to the piecemeal change?—No, I do not; I think for one thing there would be less sunlight gained, and for another such a change would ask those who did wish to alter their habits to alter them too abruptly.

812. May I ask you how you make out that less daylight would be obtained if the whole hour change were made right off instead of being made gradually. I should have thought it would be the other way about?—I have not actually made the calculation, but I think the effect is clear from a graphic representation of it; a change of an hour made at once, even if it began on the 1st April, would not be so favourable as four steps of 20 minutes each. Before I could speak positively as to that, I would have to calculate it, but I think it is fairly obvious. It would certainly be true in the more northern parts of these islands. You see in summer by the proposed change we should gain an hour and 20 minutes in the months of May, June, July and August, instead of an hour, whereas in April and September, according to the present scheme, we should not gain quite an hour, but the balance would be in favour of Mr. Willett's scheme, I believe. I thought that one of the points to which attention was drawn by a member of the Committee was that the working classes change their breakfast hour in summer time, and that that was probably due to the fact that the change in the time of opening factories was abrupt—a sudden change of an hour and a half; consequently the work-people found it inconvenient to breakfast an hour and a half earlier, but I think if the change was made gradually they would probably breakfast at nominally the same hour without any serious dislocation of their habits.

813. You are aware of the changes that were made in South African time, are you not?—Yes, I have seen Sir David Gill's account of it, and I was aware of the fact from other sources, but I think there is one point connected with it to which sufficient attention has not been drawn. In that case there were a number of different local times in use at various parts of the country—each considerable town, I understand, had its own local time, and the problem was to bring all these various local times into harmony with one common standard time for the whole colony—a much more complicated problem than that which this Bill proposes to deal with. Each different local time had to be corrected in a separate way and different instructions had to be issued to different places, but according to Sir David Gill's account the change was brought about without difficulty, and I think if people in a colony like South Africa—who are not accustomed to such changes—could do this, not only once, but follow it up with a second change from one standard time to another without difficulty, in this country a change which everybody would be prepared to submit to could be effected with very little difficulty.

814. Except that it would be leading to permanent changes, whereas this is a periodical change liable to constant shifting?—Yes, but I think people would very quickly learn to make the change.

815. Would you recommend the local synchronisation of time, as regards clocks in great public establishments?—I do not think that would offer any serious difficulty; it could be done.

816. No, no difficulty except the expense. You think it would be the best way of doing it, but

Chairman—continued.

but that the expense might in some cases discourage people from resorting to it?—I do not think the expense would be anything like what would be saved in other ways. In electrical control of clocks, for instance, if a change were made in the master clock, the other changes would follow at once.

817. Do you think that were the provisions of this Bill to come into force a great impetus would be given to greater economy in the matter of electrical synchronisation of clocks, owing to the fact that there would be more people wanting that kind of adjustment of their time. Would there be more enterprise started, and consequently greater economy, less expense than it costs now to have the clocks made right?—I have not considered that question.

818. It would become an all-important question, would it not?—I am afraid I am hardly prepared to give an opinion upon that.

819. Some sort of central institution, or institutions, to adjust the mass of clocks in the country—you have not considered it?—I have not considered the question of the costs of the electrical control. I do not think the adjustment of public clocks would be a very serious trouble. Every public clock now has some watchmaker who makes it his business to wind it up and keep it in order, and if he understands the change and when it should be effected, there ought to be no difficulty.

Mr. *Pearce.*

820. Supposing the change which was thought most convenient for the public was a change of one hour in the summer, what time would you recommend that it should take place—the 1st May?—The 1st May would occasion a diminution of the advantage to be gained; we should not gain so much each time, and my case is, assuming that this might be the best course, then what is the best date for it; is the 1st May the best date for it? I think I should be more inclined to put it about the middle of April.

821. You think the 15th April?—Yes, I think about that.

822. What would be the best day for making the corresponding change at the end of four or five months?—I should say the 1st September in that case.

823. The 1st September?—That would bring the sunrise at about six o'clock.

824. The 1st September, you think?—Yes, on the 1st September the sun would rise about six o'clock, according to the nominal time, or more accurately so about the third week in August.

825. The third week in August, you say?—That would be the ideal thing.

826. As a matter of experience, you would select a Sunday for the change?—I think so.

827. An early Sunday morning?—I think so; I think that has distinct advantages.

828. Let me put another case to you. Suppose the change was an hour and a half change—that is three changes instead of four?—Three changes of half an hour each?

829. Yes. What would be the best times for those changes? As I understand you, you think

Mr. *Pearce*—continued.

that Sundays would be best for that?—I think perhaps the second, third and fourth in April.

830. You think the second, third and fourth Sundays in April would be best for making the change of half an hour each?—Yes, it would introduce least change, it would bring the time of sunrise more nearly to the same hour.

831. And for the change in September would you say the first three Sundays or not?—The first three in September would be advisable, I think.

832. You think so?—Yes, I think the first three Sundays in September would be the best.

833. Do you not think there would be a public convenience in having the same Sundays, that is to say, in April and September—the first three Sundays in April and the first three Sundays in Sepember?—It would make a little difference in point of sunlight, just at the early hours of the morning. That would be a matter of convenience.

834. What do you think—supposing you had to put it into an Act yourself?—I do not see that it would make much matter whether the first three or the last three were selected.

835. Then the public convenience would certainly be to have a definite time well known—the first three Sundays in April and the first three Sundays in September?—Perhaps that might work best.

836. Do you not realise that that is so?—Possibly it would be best.

837. Yes, "possibly"; in that case the change proposed only affects about four or four and a half months in the year, namely, summer time, speaking roughly?—Yes, it affects six months as at present proposed—four changes of 20 minutes.

838. No; May, June, July, August—that only makes four?—But April and September would be partially affected.

839. I know, but that is only for the purpose of bringing about the change?—Yes.

840. We have been discussing here the desirability of a change made permanent for a year?—Yes.

841. I gather from what you say that you agree that we ought not to have a change made for seven and a half months, or eight months, for the sake of a change of four or four and a half months?—I beg your pardon.

842. If you make a change for a short time, and there is no occasion for the change for a longer time, that is to say if we are making a change for the summer time, it is not desirable to do more?—Yes.

843. The suggestion is that this change should extend all the year round?—I do not think we should get any advantage at all then.

844. I am not asking you that. I am asking you whether it would not be a detriment to make a change for four or four and a half months extend to twelve months, when you might leave the other four or four and a half by themselves?—I am certainly of that opinion.

845. Now I have got that clear. Have you considered the hour of the day at which the change ought to be made? The proposal in the Bill is between two and three o'clock in the morning

Mr. *Pearce*—continued.

on the Sundays; do you agree that that is the right time?—I do. I think that the small hours of the Sunday morning would be the best.

846. What "small hours"?—I think between twelve and one, or between two and three.

847. Assuming the railway companies wish the hour to be between two and three on the Sunday mornings, because that is the time when traffic is least, do you agree that that is the best time for making the change?—Yes, I think that is entirely a question for the railway people. It does not matter for a scientific man one way or the other.

848. Did you hear what was said about the question of latitude and climate, as affecting Great Britain and the rest of the countries?—Yes.

849. Do you agree that Great Britain is practically suited for such a change as is contemplated?—I agree with what Sir Robert Ball said—that the advantages to other countries in the same latitude would be quite as great.

850. In spite of their climate?—Yes, I think so, but possibly it might be easier in England.

851. Easier in Great Britain?—Easier to bring it about in Great Britain than in such places as Canada and Siberia, where the weather is more severe in April and September.

852. In spite of the scarcity of population. I want you to realise that it is not a mere question of using sunlight, but the question of the convenience of an immense number of people in a small area, namely, Great Britain?—Oh yes, there would be more people to benefit by it, I think.

853. Very much more—millions more?—There are 40 millions of people here, and only five millions in Canada for instance.

854. And practically only a few millions in Siberia?—Yes, I should think so.

855. May I take it that, in your view of these facts, you agree that Great Britain and its manufactures and climate are specially suited for such a change as this, beyond any other place in the world?—Yes, I think so.

Mr. *Richards.*

856. I suppose you think the habit of the people have much to do with the success of the recommendation, in other words that, whatever this Bill recommends, it may lead to an alteration of the habits of the people generally?—I am inclined to think it would. I think there are a large number of people who would get up earlier in the morning if they could begin their occupation.

Mr. *Richards*—continued.

857. You agree that those habits are generally brought about very largely by popular sentiment, and by popular idea?—Yes, that is *custom*,—what they have been accustomed to.

858. There is one thing I want to relieve your mind of, and that is this: that the operatives would accustom themselves to other habits. Would it surprise you to learn that it is the employers who run the factories who decide what the habits of the operatives should be as regard the hours? You cannot set the work until they start the engine. In the winter time the operative breakfasts before going to work, and then goes in at eight o'clock; he breakfasts then at half-past seven, but in the summer time when a change is made he starts work at half-past six, and does not breakfast until half-past eight. The firm for which the operative works regulates the breakfast time of the operative?—In that case the firm would continue to do it.

859. You would not be surprised to learn that on one occasion, to give an instance, there were 50,000 people working in their homes, who were within two months all brought into the Factories Regulations. I only give that as an illustration, to show that these changes can be brought about, assuming you can focus public opinion upon what is best for them?—Oh, no doubt that is so, but I think the change of time, so as to facilitate people adopting habits of earlier rising, would enable many people to do it who otherwise would not be disposed, or who would not perhaps be able to do it.

Chairman.

860. I think the Committee may take it, may they not, that your opinion, on mature consideration of the provisions of the scheme, is that it is calculated to bring about the object that the Bill has in view—to afford the people in this country increased daylight?—I do think that it is so. I cannot at present see any other method that would bring it about more favourably.

861. And that the inconveniences which are necessarily inherent in a change of this sort would be more than counterbalanced by the physical and moral advantages that would follow from its adoption?—I think the difficulties are trifling as compared with the advantages that it would confer.

(*The Witness withdrew.*)

Mr. THOMAS D. WRIGHT called in; and Examined.

Chairman.

862. You attend to-day on behalf of the Horological Institute?—Yes, Sir.

863. I suppose that includes practically all the clock and watch makers in the country?—It is representative of them all.

864. Representative; are all the great master watch and clock makers affiliated?—I think so, Sir; Oh yes.

865. Now your corporation are agreeable to the view that the change contemplated by this

Chairman—continued.

Bill, that is to say, of adding some to the sunlight available for the people of this country, would be an advantageous proceeding, apart from methods?—Apart from methods. Really I am here to express my own opinion, but I may say that I represent the opinion generally of the watch makers, and of the technical instructors in horology when I say that the general opinion is that the change would be a benefit. The action of commonsense would be to leave the clock alone, and to alter

our

Chairman—continued.

our habits. Everyone feels that; but we know a few enthusiasts cannot commence the business unless everyone else does.

866. Obviously?—And in face of that, we think some such scheme as Mr. Willett's perhaps would be good for the health of the people, and good for their pockets too. We object to Mr. Willett's method, because we all are sure that it will introduce a great deal of confusion. In the main I quite endorse Sir David Gill's opinion, that it would lead to terrible confusion; and it was for this reason that six months ago, when Mr. Willett's proposal was first brought before us, that I then proposed the adoption of Mid-European time as an alternative; and I strongly recommended Mr. Willett, since then, to have his Bill amended for that purpose. I have made a note (if you allow me to read it; it is not very long) as to our reasons for recommending the adoption of Mid-European time.

867. If it is not very long, read it?—It is not very long. I noticed, in the course of the evidence given this morning, there seemed to be some little misunderstanding. Every now and then there appeared to be a suggestion that the Bill could bring more daylight into the world—of course that cannot be. We have six months of daylight and six months of darkness, take the year round; and there is another reference made, which is confusing, to "Greenwich mean time as varied, &c." You cannot alter Greenwich time—Greenwich mean time is unalterable, unless you move Greenwich. Then there was a suggestion that the adoption of Mid-European time would be doing away with Greenwich time as a *reference*. That is quite a mistake. Berlin time is not now used. Berlin time has been suppressed, and the whole of Mid-Europe has adopted Greenwich time, but they alter it exactly one hour, and in the East of Europe they adopt Greenwich time, but alter it two hours. The United States long ago adopted Greenwich time with a difference of successive hours. Even Japan has adopted Greenwich time as the basis. I have said here: "During recent years nearly all civilised nations have suppressed their own local times, and, recognising the inconvenience of differing from us, and from each other, by odd fractions of an hour, have taken Greenwich mean time as their base, and have adopted new standards, either agreeing with Greenwich, or differing from it by one or more exact hours, according to their mean longitudes. The consequence is that the official clocks in all these countries have their minute and second hands in agreement with ours, and only differ by one hour, or, by an exact number of hours. These differences of exact hours are so clear that they lead to no mistakes, and the advantages of having the minute hands of practically all the clocks in the world in agreement has so simplified railway and telegraphic intercommunication that it would be downright wrong for us in this *country of origin of Standard Time* to divide the hour into fractions, and destroy the unanimity that so many nations have gone out of their way to bring about. Greenwich is the 'time centre of the world.' My proposition is to adopt Mid-European time as the civil standard here. Advantages: agreement of

Chairman—continued.

clock time with practically all European nations. Mid-European time would become European time. France would follow. I recommended this to Mr. Willett, but he would none of it. I think my way is the only right way to make the change." And I think it would be so easy, indeed to my mind it is the only practical way of altering the clock; shift it in agreement with the present Mid-European time. Denmark, Norway, Sweden, Germany, Italy, Switzerland, Servia, Bosnia, they all use Greenwich time with the one hour in advance; Holland, Belgium and Spain use our time just as it stands.

Mr. *Pearce.*

868. Holland and Belgium?—Yes, Holland and Belgium and Spain; they all use Greenwich time.

869. What part of Europe uses the two hours extra?—European Turkey, and two of the Balkan States I think, Bulgaria and Roumania; then Australia uses Greenwich time.

870. Russia?—Russia, I think, still uses Russian time; I am not quite sure, as there are changes constantly going on. When a State changes its official time to bring it into line with our Greenwich time, the people generally are rather slow in adapting their local church clocks to the new state of things, but eventually they come round.

871. You have heard Sir David Gill's objection to any alteration of the clock?—Yes, and it is a common-sense objection.

872. Any alteration?—Yes, it is a common-sense objection, but I do so admire the principle of encouraging people to get up early, and of encouraging myself to get up better, that I think Mr. Willett's change would be good if it were distinctly the one hour.

873. Sir David Gill is irrevocably opposed to any tampering (as he calls it) with the clocks of the country?—Yes.

874. What have you to say to that?—I do not see any great difficulty if we simply alter them a complete hour.

875. You do not see any practical difficulty?—No, one suggestion is to make the change at 2 o'clock on one of the Sundays. I do not know how you are going to get over that; who is going to alter the station clocks?

876. It has been suggested that it might be done electrically—electrical synchronisation?—Yes, that might come in time, but at the present time not one clock in a hundred is so arranged. It means a big expense, and it is unnecessary, because a good clock does not want synchronising. Who would dream of synchronising "Big Ben."

877. So your view is that any change must be in the direction of a permanent change of one hour over Greenwich time and no other?—Well, I certainly should strongly object to any subdivision of the hour. As to the permanent change, my own view is that the one hour's advance of the clock might be made, not only from the encouragement of early rising in the summer months, but because we should be setting the clocks of all Europe to agree with one another. It would add to international inter-communication, and if it is desirable to bring it back in the winter time, then alter it by that one hour at the end

of

Mr. *Pearce*—continued.

of September. I think the 31st March would not be too early to advance the clock, and the 30th September not too late to take it back.

878. I want to ask you, as a choice of methods, which you would rather have, a permanent alteration of one hour, or a six-monthly alteration? —A permanent alteration, decidedly.

879. You have no doubt in your own mind about that?—Not at all. The only inconvenience is the winter mornings being rather dark. Those things would put themselves right, I think.

880. It will give people the opportunity of getting up a little earlier, even in the winter, if they chose so to do?—Yes it would, and it is so much easier to get up a little later than it is to get up a little earlier.

881. Even if this scheme of Mr. Willett's would bear upon you, your corporation would defend such a change?—It was suggested entirely by Mr. Willett's proposal. It would lead to the encouragement of earlier rising in the summer months. There is no doubt about that.

Mr. *Holt.*

882. I think it is quite plain that you would strongly object to changes of the clock?—I strongly object to changes of the clock except by complete hours.

883. Therefore you have no word whatever to say in favour of the particular proposal of the Bill?—I think it is a very stupid suggestion.

884. You put that "pat" and as plain as can be. If you were going to have an alteration twice a year, if you were simply going to have an earlier time in the summer, you are in favour of one hour twice a year, nothing more or less? —Yes.

885. What you would really prefer is that we should adopt Mid-European time?—Yes, I think that is the most sensible arrangement.

886. And you put forward two reasons for doing it: firstly, that it makes for earlier rising, and secondly, that it makes common time practical all over Europe?—Yes, that appeals to me most.

887. That is what I want to ask you. Which is the reason you think the most important of these two?—The international adoption of common time.

888. And that, of course, there is only one method of doing, that is by adopting Mid-European time? —Yes, that fits in all round, and is already in use in so many places where they have recognised the value and advantage of our Greenwich mean time as a basis.

889. I think I may say you are the only witness —the only person we have had so far—who has suggested that an alteration should take place for the sake of placing ourselves in accord with the rest of Europe?—Yes, that appeals to me.

890. I am not saying whether I agree with you or not, but the object of the promoters of this bill is—and the object of every witness who has given evidence in favour of it—to secure early rising?—No doubt that is so.

891. That is so, and if you were going to secure early rising by an alteration of an hour—and that were your only object—if you put out of your mind altogether the wish to get common time with all the rest of Europe, it would surely be a much simpler and much more reasonable thing to simply pass an Act of Parliament which said that wherever in any statute an hour is mentioned, there should be substituted for it one hour earlier, that is to say, where you find the hour of eight mentioned in a statute you should read it as seven?—I am afraid that would not lead to much.

Mr. *Holt*—continued.

892. It would have the same effect, so far as it would promote early rising by statute, as altering the hours of the clock, would it not? —Yes, I suppose it would.

893. As far as statute can do anything, if you have any wish to get common time at all, it is obviously much more reasonable to call upon people to get up an hour earlier, knowing they are getting up an hour earlier, than to cheat them into getting up an hour earlier by saying it is 12 o'clock when it is 11 o'clock?—You see the times we adopt are all arbitrary, so I do not think so much of that. I know that Greenwich is our reference, but we go to all parts of the country and are adopting times which do not agree with the local meridians, and one reason for objecting to more than the hour change that I do, is that it is a Bill that has only studied the convenience of London and the big towns. The agricultural districts, of course, adapt themselves to sunrise and sunset, and it does not affect them at all. The big towns have got into bad habits—especially in this part of the world—and in making this proposition, Mr. Willett only appears to have kept in mind London. Cornwall is already 20 minutes later than we are. They have that 20 minutes already, but they use Greenwich time as we do. Then it is proposed that this bill should extend to Ireland. If you were to alter it 80 minutes and carry forward the 25½ minutes, by which Ireland already differs, you are going to advance their clocks nearly two hours. In the west of Ireland they are 40 minutes later than we are, and it would not be dark in June until nearly midnight. It is too big a change for Ireland. It does not take into account what is happening there, it is not taking into account what is happening in the west of our Kingdom. In the north also, in Scotland, where they have so much longer days in summer, and correspondingly short ones in winter, they have already daylight till nearly 10 o'clock. Some of my friends in Scotland who are interested say: "We would welcome your hour but we do not want Mr. Willett's 20 minutes."

894. Can you tell me off-hand what is the difference in time between Greenwich and Glasgow?—For the moment I do not remember. It is about 16 or 17 minutes.

895. And Edinburgh is a good deal more?— Edinburgh is 12 minutes, 44 seconds slow. Edinburgh is 12 minutes 44 seconds, and of course Glasgow is a little further—two or three minutes further.

Mr. *Richards.*

896. You have said that the suggestion only takes into consideration London. Of course you are aware that there are five millions of people in London?—Yes.

Mr. *Richards*—continued.

897. London is as big as Ireland, so far as population goes?—Yes.

Chairman.

897A. In greater London it would be six millions.

Mr. *Richards.*

898. I think you will agree that London is the biggest sinner in sitting up late?—Yes, I think it is.

899. And in not getting up early?—Yes, I think it is.

900. Therefore if you want to get the people out of their bad habits, it would be an improvement?—It would indeed.

901. If it was only in limiting the public houses to 11 o'clock, or say 10 o'clock, instead of 12.30, it would be?—That could be done without, but in studying the requirements of the five or six millions of people in London, I think it would be well if we studied the other 40 millions at the same time, and if we gave London 75 per cent. of Mr. Willett's requirements, and allowed the 25 per cent. discount to meet the differences in other portions of the Kingdom, we would be going a good step and acting on lines which are quite clear and distinct.

902. Whilst at the same time we are doing all we can for the agriculturists, still they do not suffer the disadvantages of the operatives in the factories of having to work in close objectionable atmosphere, where they do not get good air, or only at rare intervals. Then to add to that there is the lighting up at night and working for an hour or two hours, as we used to do, by gaslight. Of course electric light has done something to ameliorate that. Those are matters that the operative wants to avoid for the preservation of his eyes and his health?—Does not his employer naturally, for his own sake and for economy's sake, use as much daylight as possible?

903. No, he does not?—Then it would be in his power to alter his plans.

904. It would be in his power; but usually, if you can get the public to do something of a general character, you can get individuals to fall in with it, and the idea is, of course, to lift by the Bill, as it were, the time of commencing work, to make it earlier which would necessitate people getting up earlier; and you think that from your point of view it would be a mistake to alter the clocks?—It would be hopeless. If it is tried for five or six months everyone will be so wild with it that you will never hear any more about daylight schemes.

905. I always like to give everything a trial, and probably it would be a good thing if a trial was given to this?—It will condemn it. Make it a complete hour and it will fit in.

906. I have heard of this kind of thing whenever a change has come about?—That is true, but you can see beforehand what a bother it is going to be; and every watch in the Kingdom would have to be altered. You cannot do that by electricity; it would have to be altered four weeks in succession. People would have to say: "Let us see, is this the week that I have to alter my watch; how much does it differ?" It would

Mr. *Richards*—continued.

be shocking. It would be no good a man having a good watch.

907. It would be a trouble to some I know to have to change?—It would.

Mr. *Holt.*

908. It would spoil a good watch, would it not?—A good watch would be of no use if you had to alter it eight times a year. A man who buys himself a watch which keeps time to a minute a year would have to shift it about eight times a year. It would condemn it—that is from a practical point of view—I am taking my watchmaker's point of view, but I am quite sure the majority of people would find it an intolerable nuisance.

Mr. *Richards.*

909. It might be good for the watch trade?—We do not want any help of that sort.

Sir *Walter Nugent.*

910. I take it from your evidence, therefore, that you think some change is desirable?—Yes, I think it would be good.

911. And you think that the more desirable change would be to put forward the clocks by statute, permanently?—Yes.

912. And if people desired to have any change made you think they should agitate for it?—Yes.

913. Your own idea is that it is better not to put the clocks back?—Yes, that is decidedly so.

914. And you think that if people once had their present habits broken they would adapt themselves in winter to the daylight?—I am quite sure they would. The only objection that seemed to have any effect was this gentleman's, who said, with regard to the Stock Exchange business, speaking of the American markets, that they would have to sacrifice the afternoon. I do not think America is likely to alter its time because we do.

Mr. *Pearce.*

915. If Mid-European time was adopted, where would Greenwich time apply at all?—It would be Greenwich time still, only a difference of that one hour of the clock.

916. But Mid-European time is not Greenwich time?—It is based on Greenwich time.

917. I know that, but the origin of time starts, as Sir David Gill said, from Greenwich time; what countries would be using it?—Denmark, Norway, Sweden, Germany, Austria, Hungary, Switzerland.

918. You are speaking of Mid-European time?—Yes.

919. I am speaking about Greenwich time?—Greenwich time. Holland, Belgium and Spain.

920. And what else?—And Great Britain.

921. We are going to give it up if we are going to adopt Mid-European time?—I do not call that giving it up.

922. Is it so or not? If we reckon with Germany we are not reckoning with Holland?—Yes, we are both reckoning from the same source. We only differ an hour.

Mr. *Pearce*—continued.

923. You would not call Mid-European time the same time as they use in Holland?—No.

924. Then let us be quite clear. Your proposition is that Holland, Spain and Belgium should use Greenwich time, and that Great Britain should use Mid-European time?—Yes.

925. I suppose the whole of the ocean at least would be free to use Greenwich time?—The whole of the world is still free to use Greenwich time.

926. All the ocean; but there would be no land using Greenwich time except Holland, Spain and Belgium?—They probably would adapt themselves to Mid-European time if that were made permanent.

927. Then there would be no land in the world using Greenwich time?—Every person who took an observation of the sun would be using Greenwich time.

928. That would be using sun time?—He would be using Greenwich time as his reference.

929. If you put it in that way, you seem to be quibbling with me?—I do not wish to quibble with you, Sir.

930. What I want to get at is, if Holland, Belgium and Spain were using Mid-European time, what part of the world would remain using Greenwich time?—Precisely the same as if Mr. Willett's proposal were adopted.

Mr. *Pearce*—continued.

931. Now, will you answer my question? What part of the world would be using Greenwich time?—Well, I cannot remember places, Sir. I do not know whether Iceland is using it; probably not.

932. Would any?—No, I do not think any would.

933. Let me help your memory. Do not you know that the meridian of Greenwich goes right through the Western Azores, the west of the Antarctic?—It does not go west of anywhere.

934. Does it not go west of the Azores?—I do not remember; it passes through Africa, and if it passes through Africa, it must pass out of Africa.

935. I think you are wrong?—It must go into Africa.

936. As a clockmaker you know which it is?—It goes through the northern part of Africa, but where it passes out into the Atlantic I do not remember.

937. You do not know?—No.

938. What would North Africa be doing about it?—I do not know whether they would pay any attention to it.

(*The Witness withdrew.*)

Mr. JAMES C. MONTGOMERIE called in; and Examined.

Chairman.

939. I understand that you have come here to give evidence from the point of view of the convenience and opportunities that the scheme of this Bill would afford for playing golf to business men?—Yes, that is so.

940. From what points of view do the provisions of this Bill commend themselves to your judgment?—By increasing daylight; the business hours would close correspondingly sooner, and thereby the members—the golfers—of the golfing club would be able to come down in the afternoon earlier than they do now.

941. From the fact that the establishments would close an hour earlier?—An hour or an hour and 20 minutes earlier.

942. What other advantages do you suggest?—That is the sole advantage from the golfer's point of view—that he would get a longer time to play his game; and, of course, in other affairs of sport the same thing would apply, I take it.

943. Have you considered the methods proposed to be adopted by the Bill?—No, I have not considered the Bill in any shape or form, except from that point of view; except, also, that if it is carried it will be a great boon to golfers.

944. You are not aware of any objection that you think might be raised to the Bill as it stands, as regards a piecemeal application of the change of hours?—I rather think it would be preferable, from the working point of view, to have a change of one hour.

945. Would you have a permanent change of one hour or a six months' change?—Well, I am not sufficiently scientific to give an opinion upon that point.

Chairman—continued.

946. Do I understand rightly that there is nothing from any point of view that you would wish to place before the Committee?—No, it is simply from the golfers' point of view.

Mr. *Holt.*

947. Are you in business yourself?—I am the Secretary of the Mid-Surrey Golf Club.

948. You are not a commercial man?—No, I am not a commercial man.

949. Of course, obviously, this would only be an advantage to golfers if the offices stuck to the present nominal time?—Yes.

950. If anything happened that they came to the conclusion that their business had to be conducted by *real time*, and altered their nominal time, the advantage would then absolutely disappear?—The advantage would then absolutely disappear.

951. So far as the golf clubs are concerned, surely it would be an advantage to them to have the same system in operation both summer and winter for the Saturday afternoon?—Yes, for the Saturday.

952. The Saturday afternoon is just as valuable to the golfer in the winter as in the summer?—No, not quite as valuable; I think not.

953. You know a great many people do not get away till one or two o'clock; what difference would it make to those people?—They get an hour, or an hour and 10 minutes' more play.

(*The Witness withdrew.*)

Thursday, 21st May, 1908.

MEMBERS PRESENT:

Mr. Holt.
Sir Walter Nugent.
Mr. Robert Pearce.
Mr. Pirie.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

The Right Hon. Lord AVEBURY (attending by permission of the House of Lords), Examined.

Chairman.

954. You have been for more than 50 years Secretary, Vice-Chairman, or Chairman of the London Bankers?—I have.

955. You are now the Chairman of the London Bankers and President of the Central Association of Bankers?—I am.

956. You have been President of the London Chamber of Commerce and of the Associated Chambers of Commerce?—I have.

957. Have you considered the provisions of the Bill?—I have. I have not gone into details; I have considered the Bill generally.

958. And what is your view with regard to its general purport?—My view of it is that it would be a great convenience to merchants and bankers and what is of more importance to our clerks, and the clerks generally throughout the City. They would be able to get away at a time which would enable them to play a game of cricket or get some other healthy outdoor exercise, which I believe would be a very great boon to them.

959. Have you any view as to the methods suggested by the Bill?—Well, I think in the first place that if it is to be done at all it must be done by legislation. No doubt bankers and merchants can make a custom, but it takes time to make a custom, and you could not make a custom so quickly as to fall in with the suggestions of this Bill. It would be impossible, for instance, to make a custom to alter the time of the clock eight times in the year, and therefore it is quite impossible for us to alter our hours unless it is done by legislation. Even if we were all to agree as to the desirability of altering the hours, it would not give legal authority, and I feel sure it would be impossible to do it in that way. In my judgment, therefore, if anything is done at all it must be by legislation.

960. Now we have had several witnesses before us who approve of the principle of the Bill, but

Chairman—continued.

who are hopelessly at variance as to the manner in which the proposed change can be carried out—that is to say, some witnesses have been in favour of the piecemeal alteration of the clocks as suggested by the Bill; others have recommended the adoption of what is known as "Mid-European time," which is an hour faster than the Greenwich time, and that, every six months of the year; and others have gone the "Whole Hog"—that is for a permanent alteration and the adoption of Mid-European time. Can you throw any light upon either of these three suggestions?—Well, I really have not considered the question of the Mid-European time. Personally, I think that the changes in the Bill are rather numerous, and if it would be possible to reduce the number and change half an hour or even an hour, I am disposed to think it would be more simple and more convenient; but that seems to me to be a question on which the railway companies and the Post Office could speak with much more authority. If the change is to be made at all, I think the Committee will agree that it would be necessary that the railway companies and the Post Office should fall in with the arrangement, because it would be impossible for merchants or for bankers to work their business unless they got their letters and were able to send their letters off at the same corresponding hours as at present. It does not very much matter, I think, to men in business whether there are two or four or whether there is only one change in the year, but it may make, and probably would make, a great deal of difference to the railway companies and the Post Office. Personally, therefore, I should be disposed to think that they can but advise the Committee in the matter.

961. Precisely. I point out to you that the reason given by Mr. Willett, the author of the scheme for this gradual alteration of the time, is,

 that

Chairman—continued.

that if you altered the time by one whole hour, and people forgot to wind their clocks accordingly, it might make a very grave difference in their respective arrangements; but when it is a question of altering it by 20 minutes, if the adjustment were not made, it would not be such a serious matter. Have you anything to say about that?—Well, no doubt that is so; at the same time, if it is a question of catching a train, if you are five minutes late you may just as well be an hour late. I do not myself feel that there is very much in that objection, and, of course, if it is done at four times there are four chances of your forgetting to change, whereas if it is done once, surely it is more likely to make an impression upon the imagination, and would be less likely to be forgotten; but I do not feel very strongly upon that point. At the same time I do rather lean to the view that the fewer changes the better.

962. Could you tell the Committee, if any change is to be made, whether you would prefer a permanent alteration or a six-monthly alteration?—I think on the whole I should prefer the six-monthly alteration; but there, again, that is rather a matter of detail, which we have not considered in the City very much.

Mr. *Pirie.*

963. Permanent alteration surely would take away in the winter practically the whole or a great deal of what you gained by the alteration in the summer?—Yes, but then in the winter the daylight is so short in any case that, excepting on a half-holiday, it really would give no time for the employees in banks and mercantile offices or legal offices and still less in shops to get much out-of-door exercise.

964. From the single point of view of out-of-door exercise, as regards the consumption of artificial light, permanent alteration would in the winter practically ruin to a certain extent the saving which was adopted in the summer. However, we agree on the point; I only just want to emphasise the point?—Yes.

965. You have read *this* pamphlet of Mr. Willett's, "The Waste of Daylight," have you?—I read it some time ago.

966. He really takes into consideration three possible alterations—three possible ways rather—of carrying out this reform—one by a change of four steps of 20 minutes each, another of three changes of 30 minutes each, and one of one hour; you agree that the fewer changes the better?—Yes.

967. Then you would prefer three changes of 30 minutes to four changes of 20 minutes?—Yes, I should; but at the same time I do not feel that it is very important which it is, and, speaking for the bankers and merchants, I think there are other classes of the community to whom it is more important than it is to us—particularly the railways, I should say

968. The "half-hour" would probably be the more convenient fraction of the hour by which to change than 20 minutes?—I think it would be from our point of view.

969. You think it would be?—Yes.

Mr. *Pirie*—continued.

970. And as regards the inconvenience of the changes—people losing their trains or forgetting to wind their clocks—at the very outside the inconvenience of the change during the night could only be felt and experienced for the following 24 hours. No one could go through a whole day and not be aware that his clock or his conduct during the whole day was at variance with that of the whole of the rest of the world?—That is so. At the same time, if you were going on a Continental trip, for instance, it might happen that you might miss your train, and the inconvenience might be very much more than 24 hours, but those are such exceptional cases that they do not amount to very much.

971. They are quite infinitesimal as compared with the convenience of the millions of people that will be affected beneficially by this scheme?—Quite so.

972. From your general knowledge as regards the statement of Mr. Willett that if this reform was carried out the country would be saved an annual expenditure of upwards of two and a half millions. Do you consider that statement at all exaggerated?—I could quite believe that it is true, but I cannot say that I have worked it out. I have not come prepared to give evidence upon that point. It is clear that there would be a very great saving in that matter of light.

Mr. *Pearce.*

973. I should like to ask you whether you have formed any opinion as to whether the "hour and 20 minutes" or the "hour and a half" saving of time in the morning is sufficient—whether we have drawn the line in the Bill at the right distance from sunrise. May I ask your Lordship to look at that diagram (handing same to the Witness), which is drawn to scale to represent the gain of daylight on the hour-and-20-minutes plan? Your Lordship will notice that that is all well within the time after sunrise. The black line shows the time of sunrise through the various months. Should we keep it at the point at which it is designed in Mr. Willett's circular, or should we attempt to make it a larger gain of daylight in the morning—or a less gain?—Well, I really have not considered that point, and it is one which would want a good deal of thought. I am disposed to think that Mr. Willett's suggestion went perhaps as far as it is desirable to go at present.

974. You are of opinion that his suggestion goes as far as desirable to go at present?—Yes.

975. I gather from what you said, my Lord, that you have not gone into the details of exactly how to work out the changes in the administration in April and September—whether in railways or in banks or elsewhere?—I do not think there would be any difficulty in banks or mercantile offices or in legal offices.

976. Or in any class of labour where people were stationary?—No, probably not.

977. It would only affect the moving people—those who happened to be travelling by trains in the night on those Sunday mornings?—I think that is so in the main.

Chairman.

980. Of course, you are the author of the Bank Holiday Act, are you not?—Yes.

981. I think it would be quite useful guidance to the Committee to know from you that if the principle of this Bill—apart from the methods of carrying out its object—is a good one, you consider it cannot be done effectually or otherwise except by the intervention of legislative machinery?—That is quite my view.

982. That is your distinct view?—Yes.

983. You said just now something about getting the Post Office and the railway companies to agree to the scheme, or it would be a failure. Have you any reason to believe that the Post Office people object to it?—Oh, no, I have no reason at all; but I think the Committee will see the necessity of having sufficient time for the work of the day. The merchants now have as much as they can do to get their letters through in time to catch the afternoon and evening posts, and if therefore they did not get the letters so soon, and the evening posts went out at the same time as now, it would be very difficult indeed to work this arrangement, and in the case of the country clearing—where it is necessary that everything should go as it were by clockwork—the number of country cheques is enormous and is growing—I do not think it would be possible for the banks to get the cheques through if the hours were shortened; so that everything I have said has been said upon the hypothesis that our working hours would be the same under the provisions of this Bill as they are now, and that we should get our letters at the corresponding time in the morning and have as long a day in which to deal with them. In fact that the interval between the morning and evening posts should be the same as at present.

984. We may take it your view is that, so far from being an inconvenience to the Post Office, it would be a distinct gain in delivery and collection of letters?—I did not intend to go so far as that. I am not competent to speak for the Post Office; but what I meant to say was that it would be, I think, almost necessary for those in business to have as long a time after the delivery of the letters in the morning and before the posts go out in the evening, as they have at present, and of course that could only be done if the Post Office would fall in with the arrangement and act accordingly.

985. Precisely, and it is not the intention, and we hope it will not be the effect, of the Bill to prolong the working hours, nor I think to shorten them?—No.

986. The number of hours would be the same as now, although business men would begin earlier and leave off earlier?—Yes.

Mr. *Pirie.*

987. By *sun* not by *time.*

Chairman.

988. The Bill is not mandatory; it is purely optional; it gives people the chance of working earlier if they wish to do it?—Yes but if the Committee will let me say it, the reason I mentioned it was this: that I do not think there is anything actually in the Bill which would, so to say, compel the Post Office to deliver the letters earlier; and what I intended to convey to the Committee was that, if there was this alteration—we will say of an hour and a half—unless we got our letters an hour and a half sooner—not by the altered time but by the present time—so that we might have the same length of time in which to deal with them between the delivery of the letters and the time of the post going out in the afternoon, there would be very great difficulty in conducting the business of the country.

Mr. *Holt.*

989. I think I understood you to say that the position would be this—that unless everybody agrees, after the passing of this Bill, to keep to the same nominal hours, it will be impossible to work it?—Oh, I did not intend to go quite so far as that.

990. Well, it would be very inconvenient, if nothing more?—No, I would not go even quite so far as that. If the Bill passes, it will enable the bankers and the merchants to open their offices at a different sun-time to what they do at present. We cannot do that practically unless we get legislative authority for doing it, and I do not think it would be possible to do it unless the railways and the Post Office would alter their hours accordingly; but of course other people may do as they like.

991. You would require the railways and the Post Office to adhere to the same nominal time by the Act as that which they adhere to now?—Yes, the same nominal time—quite so.

992. That is the point I wanted to get at?—That would be necessary, so that we should have the same length of time between opening and closing as at present, and that our clerks should get to business with the usual facilities now afforded by the railways.

993. Perhaps you could tell us how far a banker is regulated by statute, if at all?—Well, bankers are so completely regulated by custom that I am really not able to say whether there is any statute about it; I think it is entirely by custom.

994. You think their business is conducted now entirely by custom?—Yes.

995. The point that I think some of us want to get at very much is, how far existing hours are regulated by statute and how far by custom. It is a very important thing to know that before you commence tampering with the legal character of the hour?—Practically they are regulated by custom.

996. They are regulated by custom?—Yes.

997. But is there not some such provision as that, if money is due on a certain day, it must be paid previous to three o'clock or something like that?—I am not aware of it.

998. For instance, there are restrictions in hours as to the time at which it is necessary to present a bill for acceptance?—There may be, but practically it goes by custom as to what the exact time is.

999. You could not tell us how far these transactions are regulated by law and how far by custom?

Mr. *Holt*—continued.

—I should say that substantially they are regulated by custom.

1000. Thank you very much on that point. Now I want to ask you another question. If this Bill were passed, and if the foreign nations do not follow suit (and we have no right to assume that they will follow suit), of course it is obvious that the Continental mail would continue to arrive not at the same nominal time but at the same sun-time. (I think that is admitted by the railway companies), and it would be impossible to alter the through connections with the Continent and that the arrivals here would be at least an hour and 20 minutes later by nominal time. I think that was admitted. Do you think that that would be a substantial inconvenience to business ?—I am afraid it would be.

1001. You think it would be a substantial inconvenience ?—Yes.

1002. One other question I want to ask you is this. You are also no doubt aware that the commercial intercourse between this country and the United States of America is extremely great ?—Certainly.

1003. That there are enormous transactions between the two countries ?—Enormous.

1004. You are probably also aware of the difference of time between London and New York —three o'clock and five o'clock ?—Yes.

1005. And therefore in ordinary business hours it is only the hours between three o'clock and five o'clock during which it is possible to do business with New York by cable on the same day ?—Yes.

1006. And that there is a very large amount of business done especially in such trades as the cotton trade and the grain trade in that time ?—Yes.

1007. Of course it is obvious that if this Bill passed what we should call five o'clock would in fact be what is now called 3.40 ?—Yes.

1008. And that would, I think, very seriously cripple the facilities for doing business with America unless the nominal hours of business were altered ?—If I may venture to suggest to the Committee, it would be well that they should hear some representative of the big American houses on these particular points.

Chairman.

1009. I thought it was general knowledge and that the transactions were so extensive that you could speak to it. Do you attach any importance to that ?—I think it is important, but I have no strong view upon the point myself. Perhaps I may just say that the Chamber of Commerce had a meeting yesterday to consider this Bill, and they passed this resolution :—" That this meeting of the London Chamber of Commerce, having heard the address by Mr. William Willett, approves in principle the provisions of the Daylight Saving Bill now before Parliament, and requests the Council to take such action in support as it might deem advisable." That resolution will come

Chairman—continued.

before the Council, I believe, this afternoon, and my impression is that the Council will adopt it from what I have heard. At the present time it is a resolution of a large meeting of the Chamber not yet adopted by the Council.

1010. The Committee will hear whether it is adopted or rejected ?—Yes.

1011. There is one more question I want to ask you about this. It is claimed for this Bill that it would bring about a very material reduction in the consumption of artificial light ?—Oh, I think it certainly would do so.

1012. And, therefore, that it would reduce the price of coal—certainly reduce the volume of smoke which is such an intolerable nuisance ?—Certainly, it would have that tendency.

Mr. *Pirie.*

1013. Arising out of a question that has been put to you, let me ask you this : with your knowledge of business do not you think that firms dealing either with the East or America would naturally change their own particular hours of business to a certain extent in conformity with the requirements of the new time, so as to deal with the respective country, be it India, or be it America, if this Bill became law ?—I think so, and I think the American houses would be able to conform to the provisions of the Bill. The Committee will, however, get that more authoritatively from somebody who is actively engaged in the American business.

1014. Comparatively quite a small change would be required to fall in with the new conditions ?—Yes. I should not myself think there would be any insuperable difficulty at all.

1015. And as regards the Post Office and the railways, naturally they would of necessity be obliged to conform to the new time ?—Well, I do not see anything in the Bill as it stands, which makes that imperative upon them.

1016. No, but public necessities would bring it about, would they not ?—It would be very inconvenient if they did not, and I should quite hope that they would. I think it would be a great advantage to the Post Office clerks, as well as it would be to our clerks.

1017. Exactly so. The Post Office, from public requirements or self-interest, would naturally fall in with the requirements of the public ?—I quite hope so. I only meant to say that I did not feel that I was competent as a Witness to say what the railway companies or the Post Office could do, but that in giving evidence in favour of the Bill, I have done so on the assumption that the railway companies and the Post Office would fall in with the suggestion.

1018. It would be only common-sense on their part to do so ?—I quite agree with that. I only meant to say that I thought it was very necessary that they should, if the thing was to work smoothly.

(*The Witness withdrew.*)

Mr. ROBERT TURNBULL called in ; and Examined.

Chairman.

1019. You represent the London and North-Western Railway ?—Yes, Sir, I am General Superintendent.

1020. General Superintendent at Euston Station? —Yes

Chairman—continued.

1021. Have you considered the principle and provisions of Mr. Willett's Bill ?—Yes, I have.

1022. Will you develop your views in connection with it ?—Well, Sir, we think it is a very excellent scheme—that it will give a half-holiday

or

Chairman—continued.

or an hour and a half extra of recreation to all our clerks and indoor staff, and that it will save a great deal of artificial light, and bring us additional traffic. The indoor staff, who now get away at five o'clock, will, if this Bill becomes law, get away about 3.40 in the summer, and get a long evening for all sorts of games, and they would gladly get up earlier in the morning to secure that extra daylight in the evening; and then we think that a large number of people will get out of the large towns into the country in the evening with that addition of an hour and 20 minutes that do not go out of town now; it is not really worth their while to start to go out into the country at five o'clock or half-past five; it would be worth their while to start out at four o'clock, and get 20 or 30 miles out into the country, and especially on a Saturday we look forward to a large additional traffic. The offices and warehouses that close now, perhaps at one or two o'clock, would be closing an hour and 20 minutes earlier. That would give a large number of people a chance of getting out of the towns into the country, and we look forward to additional traffic in that way.

1023. You seem to have no misgiving about supporting the principle of the Bill; could you develop the inconveniences that those who object to the Bill have so strongly put forward, that is to say, the inconvenience of forgetfulness as regards the alteration of the clocks would bring about?—Well, Sir, we see no difficulty at all. There is no more reason why you should forget to alter your clock four times in April, to discharge a law, than going to bed and getting up in the morning. The people who forget will be the sufferers. They will be very few, and there is no reason to anticipate the people will forget. With regard to our time-tables, we see no difficulty whatever. When the clock is moved forward 20 minutes in April on the Sunday morning, the trains that are running during that time—if I can express it so—which are not started in that 20 minutes will be 20 minutes late at their destination; everybody will be quite prepared that they should be 20 minutes late; they will know the reason, and there will be no inconvenience. Any trains that are timed to leave an original starting-point during the 20 minutes which is jumped over, will have to be altered. If the Bill became law we should arrange that those trains were altered before it became law. I may say that we have only 13 passenger trains and 32 goods trains on the whole of the North-Western that start between two and three o'clock on Sunday morning—start from a North-Western station—so that the trouble of altering those is nothing.

1024. Do you speak for your Board?—I am sent here by Sir Frederick Harrison, our General Manager. My Chairman, Lord Stalbridge, is quite in favour of this also.

1025. So that neither you nor your Board see anything in the nature of an insuperable objection to the piecemeal alteration of the clocks, as suggested in the Bill?—We not only do not see any objection to it, but we see great benefit likely to arise from it.

1026. You suggest that it would be advisable

Chairman—continued.

to make the change on a Monday morning instead of on the Sunday morning. Why is that?—I will tell you why that is so; we have a large number of goods trains that start on the Saturday night, and they are running on the Sunday morning; they have not arrived at their destination between the hours of two and three o'clock; but we have very few that start on the Sunday night, so that it would be a little more easy for us to have the Monday instead of the Sunday; but while I put that before the Committee, I am not pressing it at all; it makes very little difficulty or difference. It would cause me, personally, a little less trouble if it were Monday morning instead of Sunday morning.

1027. And as regards Continental trains, you think the adjustment could very easily be made?—I am afraid I am not very competent to speak to the Continental train services; we have none; I think Mr. Gooday made some trouble about the Continental services, and no doubt it would be some trouble for him to alter his Continental expresses; but those are difficulties that would disappear, I hope, if the provisions of the Bill came into operation, and we had to carry them out in actual practice.

1028. I do not think Mr. Gooday considered that it would be at all insuperable?—No, I don't think he himself would say so at all.

1029. Of course there are difficulties inherent in any change?—There are.

Mr. *Pearce.*

1030. You have some preference for the Monday instead of the Sunday as the time for making the proposed alteration?—Yes. It would be a little easier, Sir, but it is not a thing of great importance. If it would suit the majority to have the Sunday morning instead of the Monday morning, we should say "Yes."

1031. Do you think it would suit all the great railways better to have the Monday or the Sunday?—I should think it would be better for them to have the Monday. I think we all have less trains running on the Monday morning than on the Sunday morning; but it is a small thing. I just put it down as a suggestion.

1032. Have you considered the gain in artificial light?—I have not worked out any estimate of the saving, but of course it would be a very large saving.

1033. You know that Mr. Vickery, of the London and South-Western Railway, estimated that there would be a saving in artificial light for all the railways in Great Britain of at least £92,000 a year?—I saw that. I do not know how he arrived at it. I should not like to swear to it.

1034. Have you any opinion as to whether that is a right figure or not?—I have not the faintest idea. I think he said he would save £4,000 a year on his railway.

Mr. *Pirie.*

1035. £3,000?—Well, whatever the figure was. If that figure is right, I think we should save double.

1036. He

Mr. *Pearce*

1036. He explained it to us and how he arrived at it. It appears on our Minutes far better than it does in the reports in the papers?—I may say you will remember there is a large saving of light in the trains themselves, not only in the stations and signals, but in the trains.

1037. He mentioned that as one of the items. Then we should like (some of us) a little more enlightenment about the actual working of the proposals in the Bill as it stands. You see there is nothing about daylight in the Bill—there is nothing about clocks in the Bill?—No.

1038. The Bill provides that in April certain hours should be only 40 minute hours long. That does not present a difficulty about the formation of your time-table?—We should not require to alter our time-table for that.

1039. Nor to ask your staff of signalmen and others, who have the management of the trains?—No, Sir.

1040. When it comes to September, and there has to be the change back again, we shall have a state of affairs which will mean an hour consisting of 80 minutes, the hour then will be 80 minutes long. That can only be shown on the clock by putting the minute hand back 20 minutes at three o'clock. I suppose you agree that the time of making the alteration, between two and three, is the right time?—It is quite convenient.

1041. Most convenient?—Yes.

1042. Very well. I wish you would explain to the Committee how the difficulty of reckoning 20 minutes over twice by the clock will be obviated?—Well, a train starting from its original starting-point before the clock was altered would, at the end of its run, be 20 minutes before its time, that is all the difference it would make to the train. Then one would have to make the same arrangements for the 20 minutes being put back in September. There would be two times a quarter to three. A train timed to start at 2.45 could not start twice at 2.45, it would have to start at the first or second of the "hour" arrangement, as might be most suitable in each case.

1043. Working still by the clock?—Certainly, working still by the clock.

1044. How would that be apparent, can you say, on your time-sheets or time-tables?—It would not be shown. The trains that would be affected would have to be all altered permanently in the time-tables before the Act came into force. We should probably have no 2.45 a.m. train anywhere.

1045. Does it make any difference to the signalling of the train?—No, the signalling, of course, is regulated by the electric instruments and the signals.

1046. The signalman is not guided by the clock at all?—Oh, yes, he is guided by the clock of course, but there need be no fear that any mishap or accident will be likely to arise owing to the alteration of the clock. The worst that would happen would be delay.

Chairman.

1047. It has been suggested that if the signalmen and the guards forgot to adjust their watches or their clocks, it might lead to accident. What do you say to that?—I do not think so.

1048. You are not afraid of that?—Not in the least; I do not see how it could lead to accident.

Mr. *Pearce.*

1049. That really answers my question. I think I need not press it further. Have you considered the suggestion that mid-European time should be adopted?—No, I have not, Sir.

Mr. *Holt.*

1050. I will ask you one or two questions if I may. The proposal in this Bill is to make four alterations of 20 minutes in April and September?—Yes, Sir.

1051. Have you at all considered how one alteration of one hour in April, or one alteration of one hour in September, would affect it?—I think the alteration of one hour is too great, Sir. I should not like the "hour's" alteration, I should like to have it in little bits, the inconvenience would be so much less.

1052. You prefer the small instalments?—Yes. I think it has been suggested that there should be three half-hour alterations. I should not mind that so much, we should get another 10 minutes' daylight.

1053. Your idea is, and the advantage you anticipate, is that you think you would get more work done in daylight, and that there would be a saving in that way, and in fact you would also get more traffic?—We think so.

1054. I suppose you are familiar with the whole of the service of the London and North-Western?—Yes.

1055. Perhaps you are aware that there is a train that leaves Windermere at nine o'clock every evening to connect with the Scotch mail, to the South?—Yes.

1056. Now if this Bill were passed and became an Act, what would you say?—We should probably have to put a later train on from those places that are favourite holiday resorts. If we found that people went out at nine o'clock, we should start at 20 minutes to eight, which would be too early for people to come back, and we should put other trains on to meet that condition of things, and we should be very glad to do it.

1057. I quite see that, but as a matter of fact, what you would really anticipate is that you would carry on your train service (put it back an hour and 20 minutes) longer every day?—No, I do not think so. There are a great many places where the last trains are quite late enough, because those trains are for business people at business places. Places like Sutton Coldfield, outside Birmingham, or St. Albans, Watford, Rickmansworth, Berkhampstead, and down to Tring from London—probably we should find an increase in the evening traffic and require to put a later train on. It might lead to that. I quite see that.

1058. Take the case (I am very familiar with) of the train at Windermere. I have occasion frequently to use that train?—I am quite aware of what you think about it.

1059. You

Mr. *Holt*—continued.

1059. You are quite aware of it?—Yes, I am quite aware of what you think of it.

1060. Suppose you want to start from a place like Liverpool to spend the day at Windermere and go back to Liverpool by the last train—to leave at nine o'clock is an exceedingly desirable arrangement after spending a day in the country; to leave at 7.40 would be exceedingly inconvenient, it would spoil a summer evening entirely?—Yes.

1061. Obviously, unless you added another train, an excursionist holiday-maker would lose as much at one end of the day as he gained at the other?—I quite see that, but I say again we should make the train suit the traffic. For instance, we have a 5.45 train; that would be leaving at 4.25, about. Probably we should not want that train at all and we should put on another in the evening.

1062. You would entirely contemplate extending a good deal of your service at any rate?—I do not say "a good deal" at every place. We will keep you right at Windermere, Sir; I will promise you that.

1063. You regard the possibility of running trains rather later in the day as one of the advantages?—I think we should get traffic to justify it. The Great Western Railway is the best example of that, I think, with their river traffic now. It would lead to more trains being run from Henley, Marlow and all those places on the river in the evening. People would not be content to come off the river an hour and 20 minutes earlier than they do now.

1064. In fact, it would do more harm than good if people had to come off the river an hour earlier?—It would be very awkward; it would do no good to that traffic anyway. There would be some increase in trains to pretty places outside big towns.

1065. The probability is that you would not make any alteration while the first two or three "20 minutes" were going on, and then at the end, when the whole hour and 20 minutes was gone, you would have to put extra trains on?—We should have to wait to get experience; we could not tell at all to begin with what we should want to do. People would not get used to the change the first summer probably, to take full advantage of it.

1066. But you do not think there would be any inconvenience to the traffic?—No, Sir, I do not think so at all.

Mr. *Pirie.*

1067. May I ask what are the three principal railway newspapers connected with the interests of the railways, both as regards the companies and also the men; do you know?—The "Railway News," "Railway Times," and the "Railway Review"—that is a Unionist paper.

1068. I am not talking of politics?—No.

1069. I beg your pardon, it is "Union?"—I know nothing about it.

1070. And there is the "Railway Gazette," is there not?—There is the "Railway Gazette." There is another paper just started. "Railways," I think it is called.

Mr. *Pirie*—continued.

1071. Do you know at all what views they take of this?—No, I have not asked them, Sir.

1072. Are all the clocks at your stations corrected by one master clock; are they synchronised?—Yes, the time goes all down the line from London.

1073. Over how many miles?—Right down. At 10 o'clock every morning it goes right down the main line, and all the junctions send it down the branches.

1074. What is your total mileage—about?—2,100 miles.

1075. Over 2,000 miles?—Over 2,000 miles.

1076. And there is no difficulty at all with the synchronisation of your clocks over a mileage of over 2,000 miles?—No, not a bit.

1077. You expressed an opinion that the change of time might be more advantageously made on a Monday morning than on a Sunday morning, and I suppose you had in your mind entirely the interests of your own railway?—Entirely Sir.

1078. I may say it was a personal reason—I do not mean to use the word offensively—selfish?—It was personal to myself; I do not mind saying that it would give me a little more trouble to have the alteration made on the Sunday morning than on the Monday morning, but it is not worth talking about.

1079. Do not you think there would be an advantage in this change taking place on the Sunday morning, from the fact that, if any minority did happen to be forgetful people, they would not suffer so much?—Yes, I can see that would be a benefit.

1080. And as regards the fractions of time at which it is proposed to change—the 20 minutes, the half-hour, or hour—those are the three alternatives—do not you think that perhaps the middle of the three—the 30 minutes—would offer some advantages, inasmuch as it would be an easier fraction of an hour to change?—I would rather stick to the 20 minutes, Sir—I like the four 20-minute steps. It would cause very little dislocation, the 20 minutes; I look at it as being, on the whole, the best.

1081. The four fractional changes, of course, extend over the month?—Yes. I would rather have the three "thirties" than nothing.

1082. You would rather have that than the hour?—I would rather have that than the hour.

Mr. *Holt.*

1083. But you would rather have the hour than nothing, I gather?—I would rather have the hour than nothing.

Chairman.

1084. Would you prefer it six-monthly or permanently?—Six-monthly.

Mr. *Pirie.*

1085. Of course an "hour" alteration in the 24 hours would be very serious?—It is a serious alteration I know.

Chairman.

1086. You are not afraid of disorganisation being caused

Chairman—continued.

caused to your Irish traffic owing to the fact that Irish time varies so much?—No Sir, it would be all in proportion, the alteration would go right through.

1087. You have some service in the Isle of Man, have you not—a boat service?—We have no boat of our own, we run trains in connection with the boats from Liverpool.

1088. You do not apprehend any dislocation accruing to that traffic at all?—No.

1089. Can you tell the Committee what proportion the Continental traffic bears to the traffic of the whole country?—We have not any, Sir, we could not tell. Our traffic, you see, is booked to London chiefly.

1090. Mr. Gooday told us that it was about one per cent.?—We do not know.

1091. Mr. Gooday the other day doubted whether it was one per cent. of the whole, you have no means of telling that?—I have no means of stating that.

1092. Do you as a railway expert regard it as at all impossible so to adjust English trains—or "British trains" call them—that they may carry passengers to the Continent without causing any great inconvenience and delays?—The only natural way would be to alter the trains on the English side.

Chairman—continued.

1093. You think that could be done?—That is the only way to do it, but I would rather leave that to the railways that carry Continental traffic, to tell you about.

Mr. *Pearce.*

1094. With reference to the suggested "hour" alteration.

1095. If that were put in the Bill, there would be two short hours of only 30 minutes each in April?—Yes.

1096. And there would be a double hour in September?—Yes.

1097. How would we distinguish between the two successive hours in September?—I should not like to say. I have not thought about it, because I have thought that it was rather impracticable.

1098. I suggest to you that any difference of that sort would be got over by calling the September hour, putting it on the time-table, as a day from a.m. to p.m.?—I have not thought about it. It is a big change, an hour.

(*The Witness withdrew.*)

Mr. J. F. S. GOODAY again called in; and further Examined.

Chairman.

1099. Since you gave your evidence here you have had the figures taken out and you find that the actual number of passengers to and from the Continent in 1907 was 181,531?—Yes, by our line.

1100. By your line—that being a percentage of 0·135 on the total number of passengers carried over the Great Eastern Railway during the same period, so that is scarcely one per cent?—It is about a seventh of one per cent

1101. About a seventh of one per cent.?—Yes. I said less than one per cent. in my evidence, but I find it is much less han one per cent.; it is only 0·135—that is about one-seventh per cent.

1102. In this same letter you say: "With reference to the request which was made by the Chairman of the Committee (Q. 285), the goods traffic passing over this railway during the year 1907 amounted to 6,909,467 tons. In addition there were 317,607 tons of goods conveyed over the line to and from the Continent, making a total of 7,227,074 tons. These figures do not include coal traffic"?—Yes, that is so.

Mr. *Pearce.*

1103. With reference to the proportion between Continental and Home traffic, you give the tonnage of goods?—Yes. I have given it there.

Chairman.

1104. So that it works out under 5 per cent.?—Yes, I wrote that letter because in some of the papers I was reported as having said that our Continental traffic was nine-tenths of our whole; and I have been considerably laughed at for having been supposed to have made such a statement.

Chairman—continued.

1105. Then you say: "Both as regards the passenger and the goods traffic to and from the Continent, the statistics include not only traffic by our own vessels, but also by the General Steam Navigation Company's boats between Harwich and Hamburg, and the United Steamship Company's boats between Harwich and Esbjerg. In Q. 213, should not the word 'behind' be 'before,' see Answer 210, where I say 'Holland time is 20 minutes in advance of Greenwich.'"?—That is a verbal correction.

Mr. *Holt.*

1106. 1907 was rather an exceptionally bad year for your Continental traffic, was it not?—It was.

1107. I imagine that a Continental passenger on an average—I mean from the railway point of view—is a much more important person than the average of the other passengers, because it includes the very small local person?—Certainly.

1108. The average man, in the case of the Continental passenger, is considerably more important than the average local man?—The Continental passenger always pays more than the twopenny workmen. The twopenny workmen are more numerous than our Continental passengers.

1109. The distance travelled is much greater in the one case than in the other?—The Continental passenger must travel, in our case, all the way to or from Harwich, if not further.

1110. What distance is that?—70 miles.

1111. You do not happen to know what the average passenger does travel, for instance?—No, we have not got that.

(*The Witness withdrew*).

Mr. HARRY THOMAS HOLDROM called in; and Examined.

Chairman.

1112. You are a Director of a Public Company employing in the summer from 800 to 1,000 shop assistants; is that so?—Yes, Sir.

1113. Will you favour the Committee with your views as to the main principle and provisions of Mr. Willett's scheme?—Well, personally, I think that it would be one of the greatest boons that ever occurred to the workers in shops in London, far exceeding even Lord Avebury's Shop Hours Act, or Bank Holiday Bill.

1114. What is the institution you represent?—The Bon Marché at Brixton. I do not attach the importance which seems to be attached to the recreative side of the question so much as to the saving of artificial light—not the saving of of it, but that the people who work in shops now would then be working in daylight, whereas now they are working in artificial light. I think the gain to their health would be immense. You take the number of women who are employed in shops, according to the Factory Act they can work up to eight o'clock at night; they do as a matter of fact. Well, if this hour and 20 minutes daylight were brought in there would be that less of artificial light for them to work by. The atmosphere in most of the London shops is very bad, and if you look at it from the health point of view the physique and the health of the girls employed in them, I am sorry to say, is anything but what it should be, and I think that this Bill would help them in a very great measure. I do not suppose you gentlemen are aware that at the present time the Factory Act permits the workers to remain for 30 nights during the year two hours beyond the usual time. Now I have had the figures taken out at Bon Marché, and I find that we avail ourselves of those 30 times 22 nights in the summer—in the hot weather the employees are working in that artificial light beyond the usual time. The atmosphere in shops, you will know if you observe as you go about, is anything but what it ought to be possible in the majority of places.

1115. On that point you are not afraid of the workmen being made to work longer hours in consequence of the greater daylight?—No, in a very few instances that might occur, but I do not think there would be any fear in the majority of cases that such would be the case.

1116. Are there no statutes determining the hours of work for big shops?—The Factories Acts—there are.

1117. Are they under the Factories Acts?—Yes; eight o'clock is the limit.

Mr. *Holt.*

1118. What is the hour of commencing?—Eight o'clock in the morning.

1119. Eight to eight?—Eight to eight, and I take it that the statute time would then be the altered time.

Chairman.

1120. Whether it is the altered time or not, they cannot be made to work longer hours than the 12 hours contemplated by the Act?—No, I believe they are regulated (so many hours a week) as well.

Chairman—continued.

1121. So that there cannot be anything in the apprehension that these workpeople would be made to work longer hours in consequence of the greater daylight?—Quite so.

1122. Will you go on and develop your argument?—Well, those are the main points, as far as my particular business is concerned. There certainly would be an extra time for recreation afterwards, but I do not know that the majority of the workpeople would avail themselves of it to any very great extent.

1123. Avail themselves of what?—The hours of recreation, say for cricket or tennis; that appeals to the Stock Exchange and the banking world.

1124. What Parliament can do is to place opportunities in the way of people getting recreation?—Quite so; the hours then would not admit of that to any great extent, but what it would do would be that they would be working in a purer atmosphere and when they left off work they would still have the hour or two's daylight by which to go to their homes—they would get a glimpse of daylight, which now in many instances they do not.

1125. Do you consider the tendency of modern times on the part of shopkeepers is to lessen rather than to lengthen the hours of work?—It is to lessen them.

1126. And that tendency would be accelerated and encouraged by the provisions of this Bill?—I think it would. Of course it is very difficult to get a number of shopkeepers to be unanimous. That Bill of Lord Avebury's, the Shop Hours Act, is not a success; you cannot get them to be unanimous. A gentleman stated the other day that what you had get to do was to get people to agree and the thing would be done. That is not practicable; it is an absolute impossibility. You cannot get them to do it.

1127. Is that an Act?—There has been an Early Closing Act passed.

1128. It is only optional in that Act—it is permissive?—You have to get a certain number to agree to it before the thing can be done.

1129. It is a local veto sort of thing—local option?—Yes, that is it.

1130. The Committee have had a good deal of evidence from people who, though approving of the main principle of the Bill, regard the machinery contemplated by the Bill as being so cumbersome and unwieldly as to make it practically unworkable. They think a piecemeal alteration of clocks on four Sundays every year would be an intolerable nuisance and that it would lead to great inconvenience. Have you considered that?—I cannot see that it would be so. It is well known that you do not get a "convenience" without some kind of inconvenience, and this appears to me to have such advantages that I would still prefer to alter the whole of the clocks. The objection to having them altered is infinitesimal.

Chairman—continued.

1131. You have nothing further to say upon that point?—No.

1132. Have you any preference for an alteration consisting of three half-hours, instead of four twenty minutes?—No. I should welcome any sort of alteration, whether it were an hour and a half or an hour, I think it would be such a boon.

1133. Have you considered whether a six-monthly alteration or a permanent alteration would be the better?—Permanent alteration is out of the question altogether, in my mind.

1134. Why?—Because that would be using the artificial light you want to do away with in the morning—it is dark in the winter time now at eight or a little before eight.

1135. Surely this Bill does not force anyone to open earlier or to close earlier or to close later, does it?—No.

1136. It merely gives an opportunity to people to get up earlier, even in winter, if they so choose to do. I may tell you that my idea is that it might be advisable in order to obtain the benefits of this Bill, to make a permanent alteration rather than a six months' alteration; I only ask your view about it?—Yes, in winter you will get up at seven instead of eight and you will catch the daylight at seven which you would catch at eight.

1137. Why should you get up at seven if you do not get the sun before half-past eight. The mere fact of the then nominal time being eight and Greenwich time being seven would not cause employers of labour to ask their labourers or workpeople to come at some unearthly hour?—There would be a universal time of opening all the year round.

1138. Not necessarily. You think that would be attended with inconvenience—a six-monthly alteration?—Yes, I think so.

1139. You are quite decided about that point?—Yes. I have not considered that point much, but it seems to me that the six-monthly alteration is by far the best.

Mr. *Pirie.*

1140. Amongst your acquaintances have you discussed this Bill at all?—I have, frequently, and my experience has been quite the reverse of that of Sir David Gill; everyone I have spoken to has been in favour of it, in fact I think it only needs a little amount of explanation. Possibly when you mention it to them in the first instance they will laugh at it, and say it is an impossibility and that sort of thing, but they have not realised the benefits and have hardly studied the question; even people who have written to the papers seem absolutely ignorant of the true principles of the Bill.

1141. With a very little explanation or argument it dawns upon them at once?—Quite so. If you can only get them to read that pamphlet and to think it over for five minutes their opinion is changed, but if you ask them casually in a train or anywhere, "What do you think of the Daylight Bill?" the probability is that they will scoff at it and say that it is an impossibility, that you cannot make people get up by Act of Parliament and that sort of thing. I think that anyone who reads it seriously and has a desire to benefit the workers cannot but see that it would be an immense advantage to them.

Mr. *Pirie*—continued.

1142. And do you think that it is not too much to say that of those who have given the least thought to it and read the Bill there is not one in a thousand who does not approve of it?—Quite so. You will find people ready to express disapproval of anything, and they cannot tell you why; they have not read the Bill and they do not know the working of it.

Mr. *Holt.*

1143. I think you said you were a director of the Bon Marché, Brixton?—Yes.

1144. Do you mind telling me what the usual hours of those at this shop are, when it is opened?—A quarter to nine. You might put the closing at seven in the winter and eight in summer.

1145. Seven in winter and eight in summer?—Yes, seven in winter and eight in summer.

1146. Do you mind telling me why you keep open an hour longer in summer than in winter?—Of course, on account of the daylight in a measure. People come out in the evening. It does not follow that we should keep open another hour if daylight was prolonged. We close in daylight now.

1147. You keep open, roughly speaking, an hour longer in summer than you do in winter?—Yes.

1148. I want to get at the real reason for that?—It is because we find that it is the custom of the people to shop in the evening in the summer time, up to a certain point.

1149. Then it is for your customers that you keep open the hour longer?—Yes.

1150. What class are your customers; are they mostly women or men?—They are the usual suburban class.

1151. Are they practically entirely women, or largely men?—Practically women.

1152. It is these women who come later in summer than in winter?—Yes.

1153. Have you any idea what makes those women come later in summer than in winter?—Because the evening tempts them to come out, I suppose.

1154. Do you mean that women come from a distance in summer, or go nearer home in winter?—No, I think not. You must remember this, the later closing is only just for a month or two.

1155. You see what you are doing is the exact reverse of what it is suggested we should do?—Well, we have to take things as they are, and people undoubtedly shop in the evening during the summer weather to a certain extent. They do not do it in the west end, but they do it in the suburbs.

1156. I accept what you do, but I want to try and find out why they do it?—There are a hundred and one reasons—some, we will say, of the working-class women dress after their husbands have come home and they have had their tea, and so on, and there is leisure for them to go out and do some shopping. There would be still the same leisure when this new Bill passed.

1157. What I want to know is this: what circumstance

Mr. *Holt*—continued.

cumstance happens in summer to induce these people to come to your shop an hour later than they arrive in winter. Do they go and play tennis, or something of that sort in the interval before coming to your shop?—No, I think not. I may tell you that it is more particularly in the working-class business that they shop late.

1158. In working-class businesses the people come later?—Yes.

1159. Is that, so to speak, extra custom, or do the same people come at an earlier hour, or do you get additional people in the winter?—No; they come at an earlier hour in the winter.

1160. It is somewhat curious?—Yes, but it is so, unfortunately.

1161. Under the Factory Act you cannot employ women except between the hours of eight in the morning and eight in the evening?—Yes.

1162. Suppose the Factory Act was altered, and it was laid down that you might only employ women between eight in the morning and seven in the evening, would not you be in practically as good a position as you would be by the passing of this Bill?—No, because it does not affect the workers in the shops—the assistants; the Factory only applies to those who work in the workrooms—those who sew and make up things.

1163. That does not apply to sellers?—Not to sellers.

1164. To the people at the counters?—No. As a matter of fact, we let our factory part go earlier—half-past seven—earlier than we close really.

1165. These hours of keeping open apply to the actual shop, the actual buying and selling?—Yes.

1166. What hours do the factory people work?—That is the factory, eight to eight.

1167. Yes, I know; that is the lawful hour of the factory; but you told me that the shop is opened at 8.45 in summer, and that it is closed at seven in winter and eight in summer; does that apply to the factory too?—No.

1168. The factory is always run from eight to eight all the year round?—It is varied at some houses. That is the limit. Then in addition to that you are allowed to keep them, on 30 nights during the year, an extra two hours if you want to.

1169. You have really got two different departments which happen to be in the same building?—Yes, the factory would receive as much benefit from the extra daylight of this Bill as the other. Where they are now working in workrooms with artificial light, they would be working then by daylight.

1170. And in the shop there is no legal restriction?—No, there is no legal restriction.

1171. None at all?—No.

1172. The point of the argument you suggest in favour of altering the hours seems to me to be quite conclusive in favour of an alteration of the legal limit for keeping the shop open, during the summer months at any rate?—That would be a very great advantage, no doubt. In the case of the factory it has been tried, and it has been found a success. The Act has not been passed yet that gets over that difficulty. I believe

Mr. *Holt*—continued.

the present Government are going to introduce something very soon, which will no doubt be as near perfection as one can hope for.

1173. At the same time, suppose we passed an Act of Parliament compelling all shops to close at seven o'clock in the evening, then the shop assistants at the Bon Marché would be in exactly as good a position as if this Bill were passed?—Precisely; and if you pass this Bill they are in as good a position as they would be if you passed the other, which is totally unlikely. There is already a Shop Hours Act in existence, and it has not worked at all well. It was tried in Camberwell, and a very few months afterwards they appealed and got it revoked.

1174. Supposing your customer, who has now got this curious habit of coming an hour later in summer than in winter, on the passing of this Act still came an hour later, what would happen? Supposing they said:—"We have got so much more daylight, we will put off going to the Bon Marché an hour later"?—They are regulated; they have got to get back to supper, and their many duties at home; their time is regulated to a certain extent by the clock.

1175. You have told us that in summer, of their own accord, they come an hour later to do their shopping?—An hour later than they do in the winter.

1176. Yes, an hour later than they do in the winter?—They can put off doing it.

1177. Now if the daylight goes on an hour longer, what is likely to happen?—It does not follow that they would stop out an hour longer.

1178. Does it not suggest that they might do so? They have already got the habit of keeping out an hour longer in summer than in winter; if they got the chance of a further extension of an hour, do not you think they would do it then, too?—No, I think the hours of labour in the shops in London are now as long as it is possible to make them. If the shopkeeper himself felt inclined, seeing there were people to shop, to keep his shop open a little longer, I think the feeling of his assistants, and the general feeling would be that he could not. A large firm like Bon Marché would not alter their time, of course, but smaller shops might; one would think that they might, but these shops are open now until half-past nine; well, you would not expect them to keep open until 11 every night in the week. They must close at some time, and half-past nine seems to be the limit in a way. If the people took advantage of this hour and a half of extra daylight, and kept open until 11, well, every night would be a Saturday night, would it not?

1179. It would?—You might as well ask me to explain why people shop so late on the Saturday. The very people who shop late are people who have finished work at mid-day, and leave their purchases until the evening.

1180. They often do not get paid until four or five o'clock, do they?—I am not sure that I am correct, but I believe Woolwich is one of the latest shopping districts in London, and I think the people in the Arsenal get paid on the Friday.

Sir *Walter Nugent.*

1181. I think you said it would be quite useless to make a permanent charge?—In my opinion it would be, but I have not considered that side of the question.

1182. And the reason you gave was because of the want of a uniform time for opening in the summer and the winter?—Yes, closing late.

1183. Did not you subsequently tell us that the hours varied from seven in winter to eight in summer?—In the closing, not the opening.

1184. If they make that variation now, why could not they make a permanent alteration?—Well, I suppose it might possibly be done. I do not say that it is absolutely impossible, but I do not think it is so practicable as the present hour.

1185. You see, the difficulty is that, although the majority of the witnesses seem to think the change would be desirable, they all realise that, however it was done, it would be inconvenient, and if a permanent hour would suit as well, you could avoid that difficulty?—Yes.

1186. Then with regard to the different changes suggested—the change suggested in the Bill—the three variations in summer and autumn, or the making of a permanent change, which do you think would be most suitable to the business you represent—to make changes of one hour in spring, and one hour in autumn, or to do as the Bill proposes?—Well, as far as my business is concerned, I do not think it would matter either way; we should accommodate ourselves to it with very little inconvenience.

1187. It would be a bigger variation, of course?—Yes, but it is only for one day after all, is it?

1188. You think that in many places the manufacturers and shopkeepers would keep open just as late after the one change of an hour, as they do now?—Yes, I think so, except that we should then only get the *hour* instead of the *hour and twenty minutes.*

1189. And of the two you would rather favour the the Bill, would you?—Yes, personally, I rather favour the three half-hour changes.

1190. That is another thing altogether? But the principle is the same, is it not?

1191. An alteration three times, made on the Sundays?—Three times of half an hour each.

1192. That is a different thing?—Yes.

Mr. *Pearce.*

1193. Are you speaking of your experience as a sample for the whole country?—No, more particularly for London, and in large towns like Liverpool and Manchester—those towns.

1194. The large towns?—Yes, in any country town, of course, their hours of labour are not so long.

1195. Does your custom of shopping apply to the West End?—No, it applies more particularly to the suburbs.

1196. To the surburbs of London?—Yes, the suburbs are later than the West End. The West End shops would close, no doubt, about half-past six.

1197. Then you put your evidence as a sample of the benefit which all the large towns would derive?—Well, the majority of them, I take it.

1198. Do you realise that the large towns hold by far the greater proportion of the population?—Yes, and the conditions are similar to London.

Mr. *Pearce*—continued.

1199. The conditions are similar. With reference to the suggestion of a permanent change, if you alter the name of "eight o'clock" to "nine o'clock" all the year round does that make any difference at all?—I do not quite follow you.

1200. The suggestion is that an alteration should be made?—All the year round.

1201. That an alteration should be made by calling eight o'clock "nine o'clock," putting the clock on at three o'clock, and letting that alteration work all the year round; so that what we have been accustomed to consider eight o'clock, nine o'clock, 10 o'clock, would be nine o'clock, 10 o'clock, 11 o'clock?—Practically you would get really more daylight in the morning, would not you?

1202. No, you only alter the name of the hour, "eight o'clock" to "nine o'clock"?—If you have altered the clock an hour, nine o'clock would be eight o'clock then, I take it.

1203. Very well?—Consequently in the winter you would be getting daylight at eight o'clock.

1204. Let us be quite clear. The natural daylight will occur at the same instant whatever you call it?—Yes.

1205. The sun rises at the same time whatever name you choose to give that time?—Yes.

1206. As regards the adoption of Mid-European time, which is the idea of changing the clock an hour, if you did change the clock an hour in name, the time of sunrise would be just the same time, would it not, in spite of that?—Oh yes, quite so, only you would not be getting up at the same time.

1207. The effect of that would be that during eight months in the year, not the four months of winter, but the eight months, we should be shifting our time into darkness, is that so?—Yes.

1208. And that disadvantage would counterbalance the advantage gained in the four months or five months' change that we should get in the summer?—Yes.

1209. I want it to be quite clear in your mind, you see, that a permanent change would make really no alteration at all in favour of anybody, because our natural time is Greenwich time; is that so?—Yes.

1210. The object is to get the use of more daylight; that is the object we are seeking to attain?—Yes.

1211. You can only get that in the summer time, is not that so?—Well, I do not quite follow you with regard to that.

1212. Let me put it to you. In our latitude we have 16 or 17 hours' daylight four months of the year, the summer months?—Yes.

1213. In the other months it is just the reverse; we have only seven hours' daylight in the winter time?—Yes; if you put on your clock during the winter, as you are going to put it on, of course you are going to let it remain on, when you put it on in April, all the year, all the rest of the time. Is not that your idea?

1214. No; can you alter that condition of things, 17 hours' maximum daylight in summer and seven hours' maximum daylight in winter, by altering

Mr. *Pearce*—continued.

altering the clock?—No, I do not say you can, but you can alter the enjoyment of it; you can regulate your hours so as not to get up so early or go to bed so late as to make the difference.

1215. Your object being to get the use of more daylight, you can only get that in the summer time?—That is so.

1216. You can only get the use of more daylight in the summer time?—You cannot get it in the winter, however you alter it.

1217. Therefore a permanent change would be of no use to us in that respect?—No.

1218. The gain in the summer would be counterbalanced by the loss in the winter?—Yes.

1219. Therefore the Mid-European time would do us no good at all?—It would do good in the summer.

1220. But it would be a disadvantage in the winter?—As I say, I do not care about making it permanent.

1221. That is what I want to bring out?—I said so, I think.

1222. The disadvantage is that for seven or eight months in the year we should be a loser by taking the Mid-European time, because we should only get five months in the year of extra daylight?—Yes; I have not thought out the details, I have merely considered my evidence with regard to shop-workers.

1223. Your evidence is with reference to the summer time and the gain then?—Yes.

Mr. *Pirie.*

1224. Just one question with reference to

Mr. *Pirie*—continued.

the danger of shops stopping open late at night. Do you know Scotland at all?—No, I do not. Of course, there would be a slight danger that some would do it. There are people who would keep open all night if they thought they could get custom; but that is a very slight danger, they would be quite in a minority.

1225. You have no knowledge of any big business houses in Edinburgh, for instance?—I know them by repute, and so on.

1226. There, of course, it is daylight up to 10 and 11 at night?—Yes.

1227. And the busiest season in the year there is the time when the greatest number of tourists and paying customers are there, in those months?—Yes

1228. Would it surprise you to learn that in that busiest season, the season in which there is most daylight, all the big shops, all the shops, in fact, in Edinburgh close at the ordinary times?—That no doubt is so; the closing is regulated a great deal by the dinner hour in the case of the West-End shops. People dine there about seven o'clock, and therefore cannot be shopping at that time. In many of the suburban places they dine at mid-day and have their tea early; then they have time to go out afterwards and shop. That is practically what regulates shopping hours there.

1229. For instance, in Edinburgh, where the shops are very large shops, they, as a matter of fact, do not stop open excessively late?—No.

(*The Witness withdrew.*)

Mr. ARTHUR LEE called in; and Examined

Chairman.

1230. I understand you are Managing Director of Arthur Lee and Brothers, Limited, of Bristol and Hayes, Middlesex, employing 200 workpeople?—Yes.

1231. You are a Justice of the Peace of the City and County of Bristol, a Past President of the Bristol Chamber of Commerce, a former member of the Bristol Corporation and of the Bristol Dock Board, a Fellow of the Statistical Society and of the Society of Arts?—Yes.

1232. Have you carefully considered the proposal of Mr. Willett?—I have. I have given a great deal of consideration to it.

1233. Will you develop briefly your main evidence?—I support the proposal, from one point of view, on behalf of my staff and workpeople, to whom the reform would be a greatly-prized boon, if it could be carried into effect. The addition of 80 minutes' daylight at the end of the day in the summer months would be the addition to them of so much daylight in the hours of recreation, or so much time to be spent in the open air; and it would give very much more time therefore for health-giving exercise, which is invaluable to people whose occupation necessitates a sedentary life or confinement to a workshop. But I believe in it also from the employers' point of view, because we find that we get very much better work done in the earlier hours of the day than we do in the later hours;

Chairman—continued.

and within the last day or two, from something which has happened in the Bristol Chamber of Commerce, I have made an examination as to the temperature of the hours of the day, and I have found that during the day, taking the last few days only—and that is something which is of general occurrence—the hottest hours are from two to six o'clock, with the maximum at four; that is during the summer months; so that you get it gradually getting hotter until four o'clock; then you get it cooler. We like to have as many hours of labour as possible performed before six o'clock.

1234. What is the nature of your business?—Marble, slate, and granite manufacturers. Of course, it may be suggested that a change of the kind could be worked voluntarily, especially if it be so very advantageous to employers of labour and a boon to those employed. But I suggest to the Committee that the pioneers of such a movement would sustain too much personal loss during the process of gradually bringing the change about, and that voluntary effort, even if it could be obtained, would occasion very great disturbance and dislocation of ordinary arrangements. Of course, all of us are tied by the postal service and the train and tramway services to the hours for the opening and closing of workshops. These are all arranged on the assumption that the working hours are fixed within certain limits, and it seems to me, looking

Chairman—continued.

looking over the matter and giving great consideration to it, that the limits of time of the working hours have been fixed, with regard to the hours of daylight, in such a manner that we shall have the maximum hours of daylight enjoyed during the winter months.

Mr. *Pirie.*

1235. Under this Bill ?—No; that everybody shall have the maximum hours of daylight during the winter months, not the summer months.

1236. That is right ?—That I think is a reply to a question which was put to a previous witness. The ordinary breakfast hour during eight months of the year has been fixed between 8 and 9 a.m. Now, if you think of it, that is the earliest hour during the shortest days of the winter months at which you can take your breakfast in daylight; so we fixed it up from the 21st December, that being the time when the sun rises latest. We have fixed it to get breakfast by daylight all the year round.

Chairman.

1237. And that has become stereotyped for the summer months ?—That has become stereotyped for the summer months.

1238. Do you consider that your objection could be met by legislation ?—Yes, I do. I think legislation is absolutely necessary, too, to bring about such a change, because if you note, until there was legislation on the subject, the working-class population did not enjoy any public holiday during the part of the year most fitted for outdoor pursuits; and it was not until Lord Avebury (who was then Sir John Lubbock) brought in his Bill for the August Bank Holiday (one of the most prized holidays) that that became an institution. That would never have formed an institution without legislation.

1239. Have you consulted your staff and workpeople about this ?—Yes, and they are all unanimously of opinion that the proposed change would be of inestimable benefit to them. They all support it.

1240. You do not see any difficulty in the piecemeal alteration of the clocks ?—I do not believe there would be any inconvenience at all. No inconvenience would arise if the change were carried out in the manner proposed in the Bill. We do not have any difficulty or inconvenience when we go from here over to Ireland, where there is already a difference of 25 minutes in the day.

1241. And is it not the case that there are at present three standard times in existence in the United States ?—Yes; it does not make any difference.

1242. What are the principal objections you have heard in the course of your inquiry ?—The principal objection I have heard is that the patrons of certain fashionable hotels and restaurants, I should rather say the proprietors of the hotels, say that their clients do not like to put on evening dress during the daylight hours, but I submit that that is a very small class and that that might be altered by making their dinner hour an hour later.

1243. You do not think that that can stand in the balance as against the happiness of the large masses of people that the change would benefit ?—No, I do not think so. I may say I am a member of the Council of the Bristol Chamber of Commerce. I attended a meeting of that body the day before yesterday, when they passed a unanimous resolution in favour of Mr. Willett's proposal, and I was authorised to appear here on behalf of the Bristol Chamber of Commerce. A very interesting statement was made at that meeting, which I heard, by Mr. E. H. Mayo Gunn, who is one of the managers of the Imperial Tobacco Company. He was present, and related his practical experience with regard to 8,000 workpeople employed by the W. D. & H. O. Wills branch of the company at Bristol. He stated this fact: that the company, four years ago, as an experiment, tried the altering of the hours of work between April and September. They began at 7 a.m. instead of 8 a.m., and closed at 5 p.m. instead of 6 p.m. The result was so satisfactory that the experiment was made a permanent alteration. It was found that better work was done in the earlier and cooler hours of the morning than when the workpeople were exhausted by the heat of the day.

1244. Has it ever been suggested, in view of earlier closing hours generally, that it would lead to the promotion of temperance reform; the people would have less inclination to go to public houses ?—Well, I have not heard that.

1245. You have nothing to say in connection with it ?—That has not come under my notice. If you give people an opportunity of spending more time in the open air and spending their money on other pursuits, there would be less temptation to them to go and spend their time and money on something else.

Mr. *Pearce.*

1246. Would not the effect of this Bill be to shut public houses up an hour and 20 minutes earlier in summer time ?—That it would close public houses an hour and 20 minutes earlier ?

1247. Yes ?—Why should that be ?

1248. Public houses shut up at certain hours now, eleven o'clock, half-past eleven or twelve o'clock; if you make that time of the clock an hour and 20 minutes earlier the public houses will be shut up an hour and 20 minutes earlier ?—Quite right; they would be closed longer during the daylight hours at all events.

1249. In the summer months ?—They would be open less hours of daylight.

1250. They would close earlier in the summer months ?—Yes, really, but not nominally.

Chairman.

1251. They would open earlier ?—They would open earlier.

Mr. *Pearce.*

1252. You and I really agree. They would open earlier if they chose ?—Yes, they could open earlier if they chose, I follow that. They would have less time at the end of the day.

1253. That would be an advantage ?—Yes. It would not do any harm.

1254. And you think what will happen will be simply what happens all over the country ?—My experience

Mr. *Pearce*—continued.

experience, I think, is the experience of the ordinary manufacturing man of business.

Sir *Walter Nugent.*

1255. With regard to the question of public houses, the effect of this proposed extra hour would be that they would be open longer during the hours of daylight—in the evening; they would not be closed?—They would be closed when it was dark.

1256. So that the way in which it would affect the workers would be really that the people would, as you have said, have the chance of outdoor sports because they would have daylight, whereas if it was dark they would probably go to public-houses and other places?—Yes, probably.

1257. With regard to the way of making the change, would you be in favour of the way suggested by the Bill?—I believe in the 20 minutes alteration.

1258. You think it would not cause any great inconvenience?—I do; I think it would cause less dislocation; and with regard to that, I say that I have the experience of Wills' big tobacco company. In writing to me a letter, which I received this morning, Mr. Mayo Gunn says: "If it had been possible for me to adopt Mr. Willett's suggestion of starting work only 20 minutes earlier per week for three weeks, I should have done so, rather than have altered the times by 60 minutes right off; but the Factory Act made this impossible, as under the Factory Act regulations work has to begin with the hour. Of course, if the new Bill passes, this difficulty is removed."

1259. You are in favour of it as it stands?—Exactly.

Mr. *Holt.*

1260. I should like to ask you a question or two. Your own business, I think you have told us, is that of a manufacturer of marble, slate, and granite?—Yes.

1261. What hours do you work at your factory?—We begin at half-past six in Hayes and 6 o'clock in Bristol. We cannot begin at 6 o'clock in Hayes, because we have no train to bring our men there at that time.

1262. You begin there at 6.30 and at Bristol at 6 o'clock?—Yes.

1263. When do you stop working?—Between those hours they have breakfast and dinner. We stop at half-past five in the evening in both places.

1264. And finally stop?—And finally stop.

1265. You work very fairly long hours?—There is the dinner hour out of it.

1266. I do not put it as a matter of complaint, but they are long hours?—They are the ordinary hours.

1267. I do not mean to suggest that they are other than the ordinary hours, but they are the hours you gave us?—The men have breakfast; our men stop for breakfast and dinner.

1268. In the case of the tobacco people (Wills), they altered their hours by agreement, and that, in the case of 8,000 people, during the summer months?—Yes.

1269. For one hour?—Yes.

Mr. *Holt*—continued.

1270. And they obtained by that method all the advantages that it is suggested could be obtained by this Bill?—Yes.

1271. If it is possible for those very big people to do it by agreement, why is it not possible to do it without this Bill?—It is not possible for smaller people to do it. It would be more easy in a large town like Bristol, because our people there live in the town. I have the advantage of experience in the two places; I have the advantage of experience at a small place, Hayes, and a big town like Bristol. In the case of a small place like Hayes we have to bring our people there by train; they do not live in the place; we are tied by and are dependent upon the railway company. Our time there is regulated by the railway company. If we tried to bring it to 6 o'clock to-morrow we could not do it without going to the railway company and saying: "Please put on a train for us," and then they would say: "Well, how many of your neighbours are going to do the same thing?" and there would be a great deal of difficulty in getting people to move. There is a great deal in prejudice and a great deal in custom. Men engaged in the building trade are used to work before breakfast, and there is a great deal of trouble in getting them to alter. With regard to Wills' factory, there is a great deal of female labour. There the women prefer to come in after breakfast.

1272. When a person is doing an enormous trade, practically it is quite easy for him to arrange for his workpeople?—In the case of the smaller people it is not.

1273. In the case of the smaller people it may not be?—It is really the railway that sets the time.

1274. That applies to any place where there are conditions similar to yours at Hayes?—Yes.

1275. And in the other case, Bristol sets the time?—Yes, custom sets the time; 6 o'clock is the most convenient hour. It is the hour at which the building trade generally begins work.

1276. Of course, the building trade practically cannot go on in dark?—No. We begin very early—at 6 o'clock—except in November, December, January, and February, when we begin at 7.

Mr. *Pirie.*

1277. Have you given the same consideration to the proposal of the three 30 minutes' change as you have given to the proposal of the four 20 minutes' change?—No, I cannot say that I have.

1278. Can you give me any valid reasons why you prefer the four changes of 20 minutes to the three of 30 minutes, or do you prefer it?—I should prefer on my own account to alter it four times during the summer; I think it would be more convenient, but I think it is a question rather more for the railway companies than for me; I would be content with either.

1279. It is a small matter?—It is a small matter.

1280. It is the same question; the question of convenience; which you adopt, whether the three or the four?—I think it is much more for the railway companies than for us.

1281. If

Mr. *Holt.*

1281. If they preferred a single change of an hour ?—Yes; I should prefer to take the other.

1282. But, in your opinion, it would be principally a question for the railway companies ?—Yes.

1283. You are a Fellow of the Statistical Association ?—Yes, of the Statistical Society.

1284. Have you read *this* pamphlet of Mr. Willett's ?—I have.

1285. With your knowledge, can you substantiate his estimate of the saving to this country of over two and a half millions of money ?—No, I have not checked that.

1286. As a Member of the Bristol Corporation—I think you are—— ?—No, I am an ex-member.

1287. As an ex-member of the Bristol Corporation, can you form any estimate of the saving to an artizan's family in the saving of artificial light ?—I have not been into figures, but it is perfectly obvious that if you get an hour's more daylight each day there must be less artificial light to put you to expense. It is quite obvious.

Chairman.

1288. It is a fact, is it not, that time divisions and standards are established for the convenience of the people ?—Quite.

1289. And that they are necessarily arbitrary ?—Quite.

1290. So that the direction in which this Bill seeks to move does not appear to you to be at all a capricious or arbitrary one ?—Not the least; time is fixed entirely for the convenience of the people.

Chairman—continued.

1291. And generally, I take it, you do not see any difficulties in carrying out the provisions of this Bill ?—I do not see the slightest difficulty.

1292. Have you studied the question of economy in the use of coal ?—Yes; I think that is a most valuable consideration, because we are threatened with an increase in the cost of coal; the demand is continually increasing, and our available supplies are being reduced considerably, rapidly.

1293. Do you contemplate any serious objection on the part of the Post Office or the banks or the railways ?—You have heard one representative of the banks this morning; I would prefer that they should speak for themselves.

1294. You spoke of the Bristol Chamber of Commerce ?—In the Bristol Chamber of Commerce there are all classes; I have not heard any objection raised in Bristol.

1295. How has the view expressed in the resolution you have referred to been ascertained; has it been done by vote ?—By a vote of the Council of the Chamber; the matter has been discussed for some time past.

1296. Discussed in a meeting of the full Chamber ?—No, a meeting of the Council only.

1297. The Council, who are authorised to speak for the Chamber ?—Who are authorised to speak for the Chamber.

1298. And was that resolution passed unanimously ?—It was passed by a unanimous vote.

(*The Witness withdrew.*)

Tuesday, May 26th, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Pirie.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. WILLETT.

1299. Before the proceedings commence, Sir, may I tell you that since the last meeting of the Committee, I have received letters from Llandudno, Warminster, Aldborough and Glasgow, the Corporations in each case saying they have passed resolutions in favour of the proposal—I should like to read the letter from Glasgow, and the evidence of the others:—

"Dear Sir,

"With reference to your circular letter of the 4th inst., I have the pleasure to inform you that the Corporation of Glasgow, at its meeting on Friday last, adopted a recommendation of the Parliamentary Bills Committee approving of the proposals in the above Bill, and agreed to petition the House of Commons in favour of the same being passed into law. The Corporation have also appointed Treasurer D. M. Stevenson to appear before the Select Committee dealing with the Bill, in the event of it being found necessary or desirable for a witness to appear to give evidence on behalf of the Corporation: I have also communicated the

the resolution of the Corporation to the several City Members."

In addition to that I have received a letter from a Captain of Volunteers of the Territorial Army (the 7th Battalion Scottish Rifles) which is very much to the point, and he says :—

"To come to the point, I hold a Commission in the Volunteers, or, as we are now styled, the Territorial Forces. The men every year have to fire a certain course of musketry at the range, and must reach a certain standard to be efficient, otherwise the Regiment cannot draw efficiency allowance for these men. The working-man, as a rule, in order to get as much daylight as possible (which is most necessary, as you can understand, for musketry practice) has to go straight from his work to the range, sometimes 10—20 miles (in the case of Glasgow Regiments six miles) away, supperless, hurry through his course in order to get same over before the light fails, with the result that he neither does himself nor his regiment justice. Too often have I seen men firing when it was too dark to see even the signals, but they preferred this to making another visit to the range to complete their score. Now, if your Bill passes into law, the man will be able to go home, have his supper, go to the range and have plenty of light to fire his course. This would, as you can see, tend to the good of the country, by making her defenders more efficient in musketry. I think you should approach a Colonel of one of the London Volunteer Regiments, and get him to give evidence on this point at the Commission. Musketry is not the only point; with longer daylight, field manœuvres lasting three to four hours could be undertaken in an evening, instead of only one or two hours' drill as at present, and all officers know that four hours' manœuvring is worth more than eight hours' drill."

(*The Witness withdrew.*)

Dr. ROBERSON DAY called in; and Examined.

Chairman.

1300. You are a Doctor of Medicine of the University of London; a Member of the Royal College of Surgeons of England; a Licentiate of the Royal College of Physicians; a Licentiate of the Society of Apothecaries of London, and Physician for Diseases of Children to the London Homœopathic Hospital?—I am.

1301. Have you considered the proposal of this Bill?—Yes, I have.

1302. Will you favour the Committee with your view, both as to the principle and as to the methods which it contemplates for carrying out the principle?—I feel chiefly, as a physician, that it will be highly beneficial—beneficial in giving more light for the children, and for adults, and for the population generally. According to present circumstances we see the population in the evening staying up in the courts and in crowded tenements, lit by artificial light, and in the best hours of the morning in the summer they are still in their beds, not astir. We know the value of light in the maintenance of health—in fact, in our Metropolis we have now institutions where artificial light baths are given, to supplement the light that should come from the heavens, electric light baths, radiant heat baths, and so on. Now I maintain that the sunshine is the best form of getting these light baths, and if we could rise early in the morning and have more of the sunlight, there would be less anæmia, less of the rickets, and it would tend largely, I maintain, to prevent the deterioration of the race, which is now becoming such a serious problem.

1303. Do you consider the mode suggested of carrying it out to be practical and practicable, or have you any alternative suggestions to make?—As far as I am concerned, I do not think it would inconvenience me in the least.

1304. Have you considered as to whether it would be more expedient and less likely to give

Chairman—continued.

cause to mistakes and to errors, if a wholesale alteration of the time were made—either permanently for the whole year—or an alteration of one hour only during the summer months, instead of altering the clocks 20 minutes every Sunday for four Sundays in April. Would you be in favour of that mode of proceeding, or would you favour an alteration for six months, or for a year of one hour?—Only for the six months, do you mean?

1305. Either that, or for the whole year?—For the six months only.

1306. Would you be in favour of altering the clock for one hour for six months only?—I think the method proposed is the best.

1307. You think the method proposed by the Bill is the best?—Yes—four 20 minutes, I think it is, in April and September. I might also add, Sir, that it would be for the benefit of our eyesight generally. There would be less need to use the artificial light for our reading, and many find that the daylight is infinitely better—we all know that it is so, artificial light being trying to the eyes.

1308. It has also been suggested that there would be a reduced consumption of coal, and consequently less smoke in the Metropolis?—That would be highly beneficial also.

1309. And you are specially of the opinion, I take it, that it would be a very useful thing for children?—Yes, because they feel the deprivation of sunshine and fresh air more than adults.

1310. Have you anything to say as regards the effect it will have upon the arrangement of railway time-tables?—I have not studied that point.

1311. Is there any other remark you would like to make?—I think those that I have touched upon are the principal points, Sir.

(*The Witness withdrew.*)

Admiral the Honourable Sir EDMUND R. FREMANTLE, G.C.B., called in; and Examined.

Chairman.

1312. You are not in active service now, are you?—No, I am not.

1313. Have you considered the provisions of this Bill?—Yes, I have considered them; I thought that the constant changes would be objectionable. That, I think, everybody can form an opinion upon. It does not require either a naval officer or anyone else to do that.

1314. You start with that?—I start with that idea. I am quite aware that we are constantly changing the longitude and consequently the time on board ship, but that is quite a different thing. There are no clocks except the ship's clocks, which are altered daily by the ship's officers; there is no railway, and so on.

1315. Do you approve of the principle of the Bill?—I approve of the principle of the Bill in so far that I think more daylight in the afternoons and evenings would be a great advantage to the body politic generally, in view of our present social conditions, but it could not be carried as far as is proposed by Mr. Willett, because an hour and 20 minutes would be a great deal too much. Going to a further question, what I should like to point out is that at Penzance, for instance, the difference of time is already a matter of 20 minutes.

1316. So it is in Ireland?—Yes; in Ireland it is more, of course, but then in Ireland you always keep Irish time, do you not—Dublin time?

1317. Yes, that is so?—Therefore I do not take into consideration Ireland at all. We already change our time considerably. It is only a question of changing it a little more all throughout Great Britain, the times being already changed, to keep to London time.

1318. What I mean is, that this change of time as contemplated by the Bill would equally affect Cornwall as it would Ireland, only in different ways?—In different ways—yes, it would of course, certainly; but there is 20 minutes wrong (about) roughly at Penzance and the 20 minutes is the way that Mr. Willett wishes it to be; so far, therefore, he would alter it as much as one hour and 40 minutes at certain times at Penzance. The 20 minutes you must allow for Penzance. Penzance keeps London time; if it kept its own time it would differ 20 minutes.

1319. What would you suggest?—My suggestion would be to alter the time 45 minutes.

1320. Forty-five minutes each Sunday in April?—No, 45 minutes once for all—that would be my suggestion—alter it once for all 45 minutes at any time, putting all our clocks on 45 minutes; it does not matter when, of course. If it were altered once for all Greenwich would, of course, keep Greenwich mean time. The clocks at the railway stations would also be 45 minutes fast on Greenwich, and the rest of the world would keep their own time.

1321. Have you considered that the alteration of 45 minutes would be easily accomplished?—Yes.

1322. If 45 minutes could be easily accomplished, then according to you why should we not have an hour—why 45 minutes?—Because an hour would be too much, I think, at Penzance. We must recollect there is such a thing as equation of time or the sun before the clock and the sun behind the clock, and I find that at Penzance if 45 minutes were adopted there would be a difference of 45 minutes plus 16 for equation of time at certain seasons plus 20 minutes—total, 1 hour 21 minutes wrong by the sun—you would have the 45 minutes hour I propose, which is good for London; you would have the 20 minutes in addition for Penzance—their difference of time with London—that is an hour and five minutes, and you have got equation of time at certain seasons at which the sun and the clock differ—the apparent time from mean time—the apparent time differs from mean time by as much as 16 minutes at certain seasons—in other words, when we say "It is 12 o'clock," or "Make it 12 o'clock," as we say in the Navy, you are 16 minutes wrong by the sun.

Chairman—continued.

1323. Is that only as regards Penzance?—No, that is not only as regards Penzance, but as regards the whole of the world.

Mr. *Pearce.*

1324. In February and November?—In February and November.

1325. Those are the two times?—Yes, that is to say it alters by 16 minutes. Of course it is quite clear that the earth goes round 365 times in the course of a year, but it does not go round in exactly 24 hours; it is sometimes $23\frac{3}{4}$ hours and sometimes it is $24\frac{1}{4}$, and you could not make any clock do that.

1326. Surely there is some accidental mistake in that; the revolution of the earth does not alter in time?—The revolution of the earth, I think, does alter in time, does it not? I am not quite sure.

1327. No, we can discuss that later?—If it did not alter in time it would be always 12 o'clock when the sun is on the meridian.

1328. That is a question of the eccentricity of the earth's orbit. The diurnal revolution of the earth is the most fixed quantity we have of any?—Yes.

1329. It is 23 hours, 56 minutes and some seconds?—Yes.

1330. I am speaking now of what is called in relation to the stars "sidereal" time?—Yes, "sidereal" time.

1331. Which is the most fixed quantity?—Yes, that is so.

1332. The variation you speak of is due to the eccentricity of the motion of the earth in its orbit?—Yes, you are right, that is quite true. The sidereal time is fixed.

1333. I am sorry I interrupted you?—You are quite right, but as a matter of fact, you cannot do it by the sun. That is what it comes to; you can do it by the stars. However, my proposal, Sir, is that 45 minutes and not more than 45 minutes should be the change, because, although I had originally thought of suggesting an hour, when I came to think that Penzance would be an hour and 20 minutes wrong, and that, as in February

Mr. *Pearce*—continued.

February, it would alter the time of the evening by as much as an hour and 36 minutes, I thought that was a great deal too much, so I take off a quarter of an hour, which makes it even—just an hour and 21 minutes.

Chairman.

1334. Are you aware that the time adopted in "Mid-Europe" is one hour above Greenwich time?—I understood so.

1335. What is known as "Mid-European time"?—What is the difference? I forget.

1336. One hour?—One hour; well, I think one hour is rather excessive, bearing in mind that the greater portion of England is to the westward of London.

1337. We have had witnesses who have expressed great hostility to the idea of any permanent alteration of the clock?—Yes.

1338. They said that whatever was gained under that procedure in summer would be lost in winter. Have you any suggestions to make as regards that? Do you still adhere to your view?—Yes, I do, Sir. There is some objection to it, no doubt, but I don't think it is at all sufficient to overweigh the advantages that you would get by having the later hours generally in the summer, and in the autumn and in the spring. There is such a great disadvantage in making constant changes that I do not think we could consider that for a moment. I think myself that although the constant changes would be perfectly understood in London, and you would probably have the clocks showing two different times—railway time and so on—when you come to country districts, they would never understand it, and it would cause endless confusion, because they would never know how much they were wrong. I understand the proposal of Mr. Willett is to keep the railway time as it is at present.

1339. Oh, no?—He intends to alter it four times a year?

1340. Yes, exactly?—Then he would have to alter the time-tables.

1341. Yes, we have had several important representatives of the railway interests, and they have said that would present no difficulty whatever—that it could easily be done?—I should have thought that it would have presented very great difficulties, if not to the railway companies, at all events to the people who travel by the railways, and therefore affecting the railway companies.

1342. Now, with your nautical experience, can you tell us whether it would have any prejudicial effect upon the arrival or departure of steamboats?—No, I should think not; I do not see any reason why it should make more difference to the steamboats than it does to the railways.

1343. As it is, constant alterations have to be made in the clocks on board ships crossing the Atlantic, for instance?—There is constantly, of course, a little confusion on arrival; suppose it is 11 o'clock by the time kept on board the ship, you find that the time on ashore is 11.40, or something of that sort; but I think that is always expected, and whether it existed to the extent of an extra 20 minutes or 40 minutes, I think would not make much difference.

Chairman—continued.

1344. So that on a balance of consideration you are decidedly of the view that a permanent alteration of between three-quarters of an hour and an hour would be by far the best solution?—That is my view.

Mr. *Pirie.*

1345. Not a permanent alteration?—I do not pretend to be able to represent the public view in that way as well as the railways do, but at the same time, speaking as an individual member of the public, I should say the constant alteration would be almost impossible in the country districts.

Chairman.

1346. Let me ask you this: As between a permanent alteration and a summer alteration, say extending over five or six months, which would you give the preference to?—I should prefer the permanent alteration. If the Committee thought one hour the better, that would be their opinion, Sir.

Mr. *Pirie.*

1347. If you made it a permanent alteration, surely everything would be lost in the winter which was gained in the summer. The advantage gained in the summer would be lost in the winter by a permanent alteration, would it not?—Would it? I do not know that. Speaking merely as a Naval officer, engaged on the duties which I have to perform at Plymouth, where we are 18 minutes wrong, we find it a great convenience to have the extra 18 minutes in the evening, and losing it in the morning. It is the Admiralty order to hoist the colours at 9 a.m. in the winter, the proper Plymouth time being 8.42. There are a great many things going on in the afternoon, say at four o'clock, or at half-past four, and the extra 20 minutes (or 18 minutes strictly speaking) is an advantage, I consider, and therefore, I consider, certainly an alteration up to half an hour would be a distinct advantage in the winter time. To make it three-quarters of an hour would I think, be a sort of balance but an hour would be, I think, too much; I do not think it would be entirely lost in the winter at all. I think in the spring and the autumn it would be a gain. I think in mid-winter an hour's alteration, at all events, would be a distinct loss; that I grant, but only for mid-winter. That would be my view. At Plymouth I always used to remark what a gain it was in the winter time that we had another 18 minutes in the evening; and though I am a pretty early riser myself, and we do things pretty early on board ship, I do not feel the least inconvenience in the loss of the 18 minutes in the morning.

Mr. *Richards.*

1348. May I ask why you think that Penzance should still keep their 20 minutes' difference?—They cannot help it.

1349. Is there any reasonable reason why they should still keep their 20 minutes' difference?—They cannot help it, because of all their longitude, unless you are going to do what they used to do (what shall I say?)—50 years ago—keep local time;

Mr. *Richards*—continued.

time; take railway time—they always kept that,—and that caused so much confusion that I myself recollect missing a train at Plymouth through the dock-yard taking the local time, and the railway time being kept at the railway. That is a matter of 50 years ago. I went by the local time, and I found I was too late.

1350. But when you once realise what the time is, I do not think that difficulty should arise—should it?—Well, you would not go back to local time. What I should suggest almost everywhere, whether in India or whether at the Cape, in England or in Ireland, is to keep one time as applicable to the railway time. You could not possibly go back to local time.

1351. No, exactly; but as the Chairman has already remarked, we have had several representatives of railways here, who do not see the difficulties that other people do, and I should have thought that you would agree that the railways would have had the greatest difficulty; but we will take the question now of altering the time as you say 45 minutes. You think one hour would be too much?—I think it would be too much; because you understand that an "hour" would become more than an "hour and a half" at Penzance—at certain times—in February, for instance, otherwise I should like to make it an hour. It is the extreme West of England, and the West of England is not the most advanced, generally speaking. If we could only get the general public to rise earlier, well and good.

1352. I suppose you know that some start to work earlier in the summer?—No doubt.

1353. And have their dinner-hour or mid-day meal earlier?—Yes.

1354. You see there are something like 12 million persons under 12 years of age, and the industrial population, making in all about 25 millions of people?—That, of course, would be a good thing, but I think it would be very difficult to alter the social conditions of any people, whether Koreans or English people; I mean that if we once get habits it is extremely difficult to alter them. Of course things are altered gradually by recommendation and suggestions, such as those which this important Committee would suggest, no doubt, which would have great effect.

1355. I suppose you know that now the factory operatives differ very largely?—Yes.

1356. In some factories they go to work at six o'clock in the morning, at some factories they go at seven, some at half-past, and some at eight o'clock?—Yes.

1357. Especially in the Midlands there is this variety of time, and if the operatives did not keep the time they would have to seek another situation?—Yes.

1358. The heads of firms do not see any difficulty—they do not study how much it affects their workpeople; they say: You have to be here at a certain time, and if you do not like it you can get out?—Yes.

1359. Probably you would be surprised to know that I lived in a Midland town where we went to work at eight o'clock in the morning during the winter months, and immediately April came we jumped an hour and a half and went at half-past six. We never realised any confusion in that; everyone looked eagerly forward to going at half-past six, because after taking off half an hour for breakfast we finished an hour earlier on the summer nights; we had longer evenings?—Yes; but I do not know that that applies to the whole body politic. What I mean is that if I am on board ship and pipe "hands" at five o'clock or four o'clock there would be no one to gainsay me, and they would come up at four as well as at five. But it becomes a different thing if I have a desire to alter social customs. Supposing at Plymouth I wish to change the dinner hour, and say that, because I dine at seven, I wished everybody to dine at seven; I might get a certain number of people to agree with me, but a certain number might say, "Oh no, we always dine at eight."

1360. On board ship do not you have a variety of times in watches?—Yes, of course we do.

1361. A man cannot refuse to go on watch at a certain time?—Of course not.

1362. He has to submit to his superior officer's request?—Quite so. I do not consider there is any difficulty about that, but if you wanted to get the whole social customs changed, in my opinion it would be very difficult to do it, though it might be a real benefit.

1363. That is the object of this Inquiry?—I quite agree if you could only get everybody to agree about it—personally I think it would be a very great advantage; we keep ridiculously late hours.

Mr. *Pearce.*

1364. I noticed that in speaking of an "hour" alteration you suggested five and forty minutes?—Yes.

1365. You will remember that by fixing a change of an hour we get all the "hour zones" all round the world on land agreeing in the minutes of the hour?—Yes.

1366. That is to say, the Berlin time—the Mid-European time—is an hour ahead of us. When it is 1.17 with us, it is 2.17 with them?—Yes.

1367. Would you feel that it would be worth while to give up that advantage of having all minute hands of all clocks all round the world always showing the same minute?—I am aware of what you say, but I don't know that I see the practical advantage of it very much.

1368. Do you think there is no particular advantage in knowing when you are dealing with other countries and other places, that the minute hands are all alike, and that you have only to think of the hour?—If you want to know exactly what hour zone it is.

1369. Naturally. Speaking of the five and forty minutes, have you thought about the mode of working that—would you have it all at once?—All at once! I should simply alter it at 12 o'clock on a certain day—and say that all clocks will be put forward 45 minutes—say on the 21st of June, that being midsummer day.

1370. And never have them altered afterwards?—Never have them altered afterwards—that would be my idea—*quantum valeat.*

1371. Would

Mr. *Pearce*—continued.

1371. Would not that have the effect of giving up the use of Greenwich mean time in Great Britain?—Yes, except in Greenwich. Greenwich would of course always keep Greenwich mean time.

1372. Greenwich mean time for what pnrposs?—Greenwich mean time is your standard, but you would be 45 minutes wrong in London, and in Plymouth you would be 63 minutes wrong.

1373. What is the use of Greenwich mean time?—As a correction for all ships—all ships and all longitudes are calculated from Greenwich mean time.

1374. It is for navigation purposes?—All astronomical observations are calculated according to Greenwich mean time, and consequently Greenwich is the source of time to a certain extent.

1374A. I agree it is the starting point?—It is the starting point.

1375. I quite agree to that?—Therefore you could not alter Greenwich—at least you could, of course, alter it, but you would have to make your calculation on the new basis.

1376. Does it not strike you as a strange proposition that Greenwich mean time should be used all over the ocean—all over the world, but not in Great Britain?—No.

1377. That is your proposal?—I do not know the practical effect of that; I have not thought of it.

1378. Surely having "hour zones" fixed all around the world, and each "hour zone" being Greenwich mean time (the starting point) on your suggestion the only place where the starting point was not observed, would be in Great Britain?—Yes.

1379. Surely that is not a proposition you would recommend to us?—No.

1380. You know the Bill preserves the use of Greenwich mean time for all navigation purposes?—Yes, that in any case I take it is a *sine qua non* would have to be preserved.

1381. Certainly, and it is expressly mentioned?—It would be necessary for navigation purposes. I might say that theoretically I entirely agree with Mr. Willett.

1382. Theoretically?—Theoretically I quite agree with Mr. Willett that the best change to be made for the benefit of employees and everyone generally—or the benefit of the public in Great Britain—would be to change it as you propose; but I think the obstacles are too great.

1383. You have really anticipated my next question. I think I might leave it at that—that you agree with the principle of the Bill—to secure the better use of daylight in summer?—Yes. I thought you rather seemed to think that I did not like the principle of the thing.

1384. No, I understood; it is a question of method?—Yes.

1385. Summer is only one of the four quarters, which means that it represents about four or five months, does it not?—Yes.

1386. Your plan would be that all the other months should be altered for the sake of summer?—Yes.

1387. My suggestion to you is that if we use the greater daylight in summer and leave the other quarters of the year unaltered, we get the use of daylight in summer without disturbing Greenwich mean time and without disturbing the habits of the people in the other seven months?—Yes, that is true.

1388. That can only be done practically by shifting the clock backwards and forwards?—Putting it on.

1389. If that plan were preferred, would you make one shift instead of several?—Yes, I should myself be so afraid that people in the country would be always making mistakes.

1390. Your experience is of the ocean, is it not?—Yes.

1391. We find here that there is an apprehension about the *unfamiliar*, if I may say so?—Yes.

1392. *This* is a "land regulation"?—Yes.

1393. This proposition is a regulation for the land, not for the ocean?—Yes.

1394. Supposing a plan was adopted of shifting the hour back at the end of the summer? Of course, you are quite familiar with the way in which the "Dog Watch" works?—Yes.

1395. In order to get the change in the summer we should have in April or May to make one change of an hour?—Yes.

1396. Which hour would you take it out of—which hour of the day would you suppress?—That is to say, if it is to be made once for all?

1397. No, no; suppose we make a change in April, which hour of the 24 hours would you suppress—which would you do without?—I should take it out in the morning, I think—any hour—eight o'clock.

1398. Any hour?—No, before eight o'clock, I think, as we do it on board ship. We generally take it out of the middle watch—reduce the middle watch. And I think, perhaps, on consideration, I would say between 12 and one.

1399. Would not you think the business of the railways and Post Office ought to settle that question?—Yes, I should think they ought, certainly.

1400. They find that on the Sunday morning, between two and three o'olock is the best time. Do you agree with that?—Yes. As I have said, as a rule we should take the middle watch—especially if it shortened it; if it lengthened it, it would not matter when you took it.

1401. Then some day selected in April would be 23 hours long, instead of 24?—Yes.

1402. If we reverted in the winter time to the present time, the change would come in September, would it not?—Yes.

1403. Then there would be a day of 25 hours?—Yes.

1404. Would you leave that also to the railways and the Post Office to settle which it ought to be?—Yes.

1405. How would you work it actually on the clock?—What altering the time do you mean?

1406. Yes. Suppose it was a matter on board ship, you would have no difficulty, would you?—No. We do not alter so much as you say.

1407. No, but you do alter?—Yes. We do often alter, but not so much as you say. We may alter generally in the middle of the night if it shortened it; if it lengthened it, we should generally

Mr. *Pearce*—continued.

generally give more time to the forenoon. That's our usual plan.

1408. That is where the alteration is less than an hour ?—Yes.

1409. Is not that—the alteration of an hour—somewhat like the whole alteration of a day on the 180th degree of longitude ?—Yes.

1410. There you know what happens. You remember how they manage the changes on the 180th degree of longitude ?—Yes, of course.

1411. I am not quite sure, because I am only a landsman; but I think their plan is, if you are on the 180th degree, and going westward, to make half of the Sunday Saturday, and the other half of it Sunday ?—The practice on board ship is to have two days similar going west and to call one "antipodes day."

1412. And when you are going the other way—coming eastward, you do the reverse ?—If going east a day is omitted altogether.

1413. You get a double day ?—You have two days the same, practically.

1414. That would be a kind of precedent, would it not, for having two hours in the September month ?—Yes, certainly. I quite agree that if people think the difficulties can be got over of a constant change (which I venture to think very objectionable) that would be the best plan of all. After consideration, and reading Mr. Willett's proposal again, I certainly think that the lengthening of the time in the summer, and leaving it alone in the winter, has considerable advantages, especially as you have mentioned about Greenwich time, only making it a temporary change.

1415. I notice that you speak of Penzance in your statement a good deal; but you are only using that as a sort of illustration, I suppose ?—That is all.

1416. The object is, of course, that the whole of the British Islands—forty millions of people—should get more use of summer daylight, that is the whole object ?—Is it proposed to make the alteration in Ireland too ?

1417. Yes; but then, as you remember, in 1880, Dublin mean time was made the standard for Ireland ?—Yes.

1418. So that Galway—which is somewhat similar in situation to Penzance—is keeping Dublin time ?—Yes, it is keeping Dublin time.

1419. For all civil purposes ?—Yes.

1420. That is a distinction ?—Would you alter the time with regard to Dublin time ? Would you keep Dublin time as the standard for Ireland ?

1421. Dublin mean time in that case would be varied in the summer an hour or 45 minutes, or an hour and 20 minutes, or whatever it was, just like Great Britain ?—Yes.

1422. It would be inconvenient, I think, don't you, to make Ireland so very separate, as to have its time an hour and 40 minutes behind ours ?—Yes; I do not see much objection to that, as you are leaving one country for another. Everybody is prepared, when leaving one country for another, to hear that there is a change.

Mr. *Pearce*—continued.

1423. You do not consider Ireland a separate country, do you ?—To a certain extent I do. Its geographical position almost forces it to be a separate country in the question of time, because the difference is so great.

1424. Do you remember that the change of all the local times to Greenwich time was made by the Act of 1880 ?—Yes.

1425. You consider that was a great gain, do not you, to the community ?—Yes, it was, no doubt.

1426. In spite of the position of Penzance and so on ?—Yes, changes of that sort, of course, are constantly made in India, the Cape, and the East, and have been found convenient; but as a rule, it has been convenient to take a sort of central time.

1427. The "hour zone" ?—Yes.

1428. That is only a matter of longitude ?—In India you have Madras time as the railway time.

1429. Do not they use "hour zones" in India, I think they do ?—Yes.

1430. I think they now regulate the Indian time by "hour zones" ?—I expect it is so, they call it always "Madras time."

Chairman.

1431. You laid a good deal of stress upon the fact of Penzance time being 20 minutes ahead of Greenwich time, as causing a certain amount of inconvenience if the scheme were carried out in its entirety ?—No, I do ont think it causes inconvenience; as far as the 20 minutes is concerned, I consider it a distinct advantage.

1432. I understood you to say it was one of of your determining motives to have a change of three-quarters of an hour, instead of a change of an hour, because there was this difference of 20 minutes in Penzance time ?—Yes.

1433. Now, would your objection be in any way affected if you knew that the Bristol Corporation had expressed its wholesale approval of the Bill ?—No.

1434. Would you consider that the views of Bristol would have any guiding effect upon what should be done at Penzance—is it sufficiently west ?—I should be quite satisfied if the representatives of the Penzance Corporation said they did not think it was objectionable.

1435. But at Bristol ?—They probably know.

1436. You do not think Bristol is sufficiently west ?—No.

1437. It is at least in the same latitude ?—They do not perhaps always take into consideration what is called "equation of time." I mean to say, it would bring it home to them, perhaps, that there is more difference than they are aware of.

(*The Witness withdrew.*)

1438. You

Mr. ST. JOHN WINNE, F.R.G.S., called in; and Examined.

Chairman.

1438. You are a Fellow of the Royal Geographical Society, and Chairman of the Standard Time Company?—Yes.

1439. Have you had any connection with the electrical synchronisation of standard time?—The Standard Time Company has no monopoly whatever, but happens to be the only company in London at the present time that has wires radiating over a great portion of it for the purpose of correcting clocks hourly and uniformly with Greenwich mean time, and that we call "synchronising." I want to draw a distinction, in case the point should arise presently, between what is called "synchronising" and what are often called "synchronised clocks," which are merely electrical impulse clocks. Clocks driven by electrical impulse from a master-transmitter, or a master-clock, are all synchronous with the master-transmitter; but the master transmitter is not necessarily synchronous with Greenwich mean time. Do you follow that, Sir?

1440. What would be the advantage of that arrangement, if you had a master clock that did not coincide with Greenwich mean time?—The advantage is, if, supposing for instance the clocks of the House of Commons were electrical impulse clocks, driven by a master clock, all the dials (which are merely mechanical dials—not clocks) would be synchronous in time with the master-clock, and they consequently are often called "synchronised clocks"; but I think it is better to call them "electrical impulse clocks," because if anything were to happen to the wires from the master-transmitter, all the dials would stop. Now the difference is, that in clocks synchronised by the Standard Time Company, we deal with all kinds of clocks—anybody's clocks—ordinary independent going clocks. We connect a wire to such clocks from our central station, and then correct them electrically every hour, at the sixtieth second of the sixtieth minute; but if there is any failure in the synchronising wire, or breakage, or anything of that sort, it does not stop such clocks—they are only not being synchronised until that wire is put in order again. That causes only a delay of a few hours. The difference between "synchronising" and the so called "synchronised clocks" is one which people do not appreciate.

1441. But is there any reason why this master clock is not connected?—Oh, in a master-clock, the only way to ensure Greenwich mean time—to absolutely ensure it—is to have the master transmitter synchronised, and then the master-clock and all its subsidiary dials will show synchronised or Greenwich mean time.

1442. Now, as you are aware, a good deal of objection has been expressed to this scheme on account of the constant alteration of the clocks which it would involve, and the consequent difficulty of getting anything like a fair and proper observance of time. Do you think that your company, the Standard Time Company, would undertake, at a reasonable cost, to set the hours going correctly in big establishments?—Yes, there is no difficulty whatever about it, and there is no difficulty about anyone undertaking the work. What I am most anxious about is that you should not have in your minds that, if the Standard Time Company does not do it, no one else can. We only happen to be doing it. Half a dozen people might do it—the railway companies could possibly do it for themselves.

Chairman—continued.

1443. Let us take an ordinary household in London, a house of a £100 a year, where there would be, say, four clocks; how would you propose to get these clocks adjusted according to this scheme?—Well, I ignore those altogether, Sir; what we want is a sufficient number of reliable public standards, that is to say, the clocks exhibited to the public, but not, as they do to-day, showing all sorts of times, so much so that they get called "lying clocks" and create an outcry with regard to them. As to all clocks exhibited to the public, means should be taken to ensure that they show correct time, and if synchronisation is the only way of making them show the correct time, they should be synchronised. If that was so, and the public had a sufficient number of reliable public standards, I think the alterations required in the private home would be made by the householder before retiring to rest on the eve of the changes taking place. You can quite imagine that if this Bill becomes law every newspaper on the proper day will have conspicuously printed "Advance your clocks 20 minutes to-night," or "Put them back 20 minutes"; I do not think there would be any difficulty at all, and I do not think there is any risk at all. What we are troubled about is that there is not a sufficient number of reliable public standards for people to get correct time from.

1444. That would be economically provided, how?—By synchronisation; synchronisation even in a small way is inexpensive, but in a large and general way I am convinced that the cost, beyond the present cost of winding and maintaining public clocks, would be very trifling, very trifling; certainly not more so in the case of a large public clock than an extra guinea a year or something of that sort.

1445. So that you have no objections to offer as regards the mode of procedure adopted by the Bill?—On the contrary, I have given very careful consideration to it, and for clock alteration purposes, mechanically and electrically, I think 20 minutes is an ideal period.

1446. On four Sundays in April?—Yes; the only point I should like to raise on that is this: I do not know whether *this* is a correct copy of the Bill as it now stands which appears in Mr. Willett's pamphlet. You see in Clauses 1 and 2 the alterations are provided for. In the one case it merely says that the hour shall consist of 40 minutes, and in the other that it shall consist of 80 minutes, but it does not say in what part of the hour the alteration of 20 minutes is to take place.

1447. It says at two o'clock, does it not?—Mr. Willett's representative will be able to tell us that.

Mr. *Pearce.*

1448. I can tell you all about that, as to what the

Mr. *Pearce*—continued.

the Bill says. This is what the Bill says (*handing a copy of the same to the Witness*).

Chairman.

1449. Where is the clock you have brought to show us?—I have an ordinary synchronised clock here; it will only take two minutes to put it on the table, if you like to see it work.

1450. Yes; we should like to see it?—(*The clock was produced.*) Does this Bill provide for the precise moment at which the alteration is to take place?

Mr. *Pearce.*

1451. I want to talk to you about that?—Well, *this* seems to me to be the same as in Mr. Willett's pamphlet, speaking off-hand.

1452. Yes, it is?—I do not see any difference in the two.

1453. You are quite right. In Clause 1 it is said there shall be an hour of 40 minutes long?—Yes.

1454. Does not that dispose of your difficulty?—I am looking at the practical side of this question entirely, as to the alteration of the clocks.

1455. So am I?—If the alteration may take place at any time in the hour—if that is the intention of the Act—it is a very easy matter to alter the synchronised clocks without any further special devices.

1456. Look at the interpretation clause; the interpretation clause is what we are discussing now?—You are a lawyer, Sir, I think.

1457. I know; but when the hour is fixed by statute to be one only 40 minutes long, what is the next time after the end of that 40 minutes?—Well, the *next* hour.

1458. Then in that case you would have, in order to keep faith with the statute, to put your clock on 20 minutes?—When the 40 minutes has elapsed.

1459. When the 40 minutes has elapsed, you would have to put the clock on 20 minutes?—Yes.

1460. Because that first hour is to be 40 minutes long?—Yes.

1461. You must keep faith with the statute as to that?—Yes.

1462. It is only 40 minutes long?—Yes.

1463. Therefore the next hour will be three o'clock, by the Bill?—Yes; equivalent to two-forty o'clock.

1464. Then you have to put on your clock 20 minutes?—Yes.

1465. There is no difficulty about that at all, is there?—Yes, there is a difficulty about the sudden alteration of 20 minutes of the clock.

1466. A sudden alteration?—Yes.

1467. What is the difficulty in putting the hands forward?—There is a difficulty, to start with, in striking clocks; you cannot put the hands of a striking clock 20 minutes forwards or backwards without affecting its strike.

1468. That is a question of the mode of doing it, is it not?—Yes, it is a question of the mode of doing it.

1469. If you take the hand on 19 minutes 59 seconds, and then let it wait, your striking apparatus will apply, will not it?—Yes, if you

Mr. *Pearce*—continued.

put the clock back—if you hold the hand up 20 minutes.

1470. Putting it on 20 minutes, I am thinking of that?—You will affect the striking apparatus of any clock that strikes the half hours and the quarters.

1471. If you put it on 20 minutes?—Yes, if you put it on 20 minutes you pass the quarter.

1472. Are you referring to a special clock?—No; I am referring to any ordinary clock—church and turret clocks—large clocks used as public standards, in other words.

1473. These particular difficulties are rather useful, you see?—Yes.

1474. How would you get over that difficulty?—The ideal time for mechanically and electrically changing a large clock 20 minutes seems to me to be 10 minutes to the hour and 10 minutes past the hour.

1475. Will you explain why?—It is very simple. You can quite imagine a clock with big hands. Now that clock is standing at 10 minutes past 12 (*pointing to the clock in the Committee room*).

1476. Yes?—If you wanted that clock advanced 20 minutes—I am not speaking of clocks of this type, but of large ones.

1477. Public striking clocks?—Yes. If you once realise that the minute hand were mechanically and electrically released it would drop exactly 20 minutes, it would drop to the half-hour (*illustrating with the clock produced*). You follow that, do you not?

1478. Yes?—In the same way when the time came to put back the big clocks, if you really wanted to put the clock back 20 minutes, the ideal time to release the minute hand is at 10 minutes to the hour, and then it would fall down to the half-hour.

1479. Very well; is there any reason why under the Bill that should not be done?—Not at all; I am only trying to give you some practical suggestions for the purpose of your Bill here.

1480. There is no difficulty about that practical mode of changing the time?—No, it could be done mechanically and electrically.

1481. In that case you would drop the 20 minutes back from the 10 minutes to the hour?—Yes.

1482. When you drop the hands back you would have the hour 80 minutes?—Yes.

1483. Similarly when you dropped the 10 minutes past down to the half-hour you would make that hour 20 minutes shorter?—When you drop it forward it would fall down to the half-hour there (*describing*). You shorten the hour by 20 minutes; in the other case you lengthen it.

1484. Only 20 minutes you lengthen it?—Yes.

1485. That is quite a practicable mode?—Quite a practicable mode.

1486. How about the striking?—That presents difficulties which I think could be got over. You can quite imagine that for that hour, or perhaps for that night, it might be necessary to hang up the striking apparatus of striking clocks and leave them not striking.

1487. And that could be done?—That could be done.

1488. Would it in your opinion be better that that

Mr. *Pearce*—continued.

that should be done once a year, or four times a year, or eight times a year?—I entirely agree with Mr. Willett's plan.

1489. You entirely agree with Mr. Willett's plan? You see no difficulty?—No difficulty at all. If I may describe the synchronising, of ordinary spring-wound clocks, what we do is this: You can imagine this current is passing through from our central station to a clock. *This* is simply an ordinary clock (*illustrating*). It is of the same type as *that* clock is up there (*pointing to the Committee room clock*). What we do to that is just to put a cam on the minute hand and attach this magnet and arm to the clock (*illustrating*). The effect of that is, if when the clock is coming to the hour it is slow—the minute hand is now slow—precisely at the 60th second of the 60th minute the current goes out from our central station through all the clocks, and that clock is put correct—so (*illustrating*). Now for the purpose of the Bill I will show how we should make the alterations if we had to do it with no other than the present apparatus. It involves a little give and take. But perhaps in the Bill you may be able to suggest some more practical method to effect the same object. Now I want to make my 20 minutes alteration in this synchronised clock. I am going to advance my clock 20 minutes, according to your Bill. I should do it without altering that mechanical and electrical arrangement there at all. I should pass through my current at 10 minutes to two, and thus I bring the minute hand to the hour and gain 10 minutes of the 20 required. I cannot do any more to it until the minute hand comes round again to 10 minutes to three, when in the same way I advance it suddenly 10 minutes more, so that at three o'clock you have got the full 20 minutes alteration (*illustrating*). That is how I put it forward. Now putting it backward I should wait until the clock came to 10 minutes past two and then I should put the current through to put it back 10 minutes. I should then have to wait until it came to 10 minutes past again, then pass the current once more, and then the clock will have been retarded the required 20 minutes.

Chairman.

1490. What is the objection to gaining the whole 20 minutes?—I say we could do what I have shown without making any alteration whatever in our present apparatus.

1491. If you have two similar adjustments you would get the 20 minutes?—To advance the clock 20 minutes at one stroke I should have to put a different arrangement altogether into the clock, and it could easily be done; but considering the Bill from a practical point of view I have endeavoured not to disturb existing arrangements more than can possibly be helped.

Mr. *Pirie.*

1492. While you are still at the clock may I ask you if it would be possible to show us this: Suppose it was decided to alter the time by half an hour?—Well, for half an hour we should probably do it in two quarters without altering the existing apparatus.

Mr. *Pirie*—continued.

1493. You would do it in two quarters as easily as you did the two 10 minutes?—Yes, you see there are so many types of clock. *This* is an ordinary type of a spring wound clock, such as you have throughout the whole of this building, and such as people generally have, but you must think of clocks which set standards, for people to set their time by. There, of course, you are dealing with a different mechanism again, and for this mechanism I think 20 minutes is an ideal thing, and you would probably find the practical way for it to be effected would be by releasing the minute hand in the way I have described to you.

Mr. *Pearce.*

1494. Now let me ask you another sort of question. Tell me this: On these operations you get certain minutes which are reckoned over twice; when on a circular clock you add 20 minutes to an hour and make an hour of 80 minutes long, you do it by counting every second 20 minutes twice?—I do it then by two operations of 10 minutes each.

1495. They have to be counted twice?—Yes.

1496. Very well, but in practice how shall we be able to distinguish the earlier 10 minutes from the second 10 minutes or 20 minutes?—Well, that is not ideal, of course. The ideal is to make your change at the time you require it made.

1497. I want to keep your mind on this: We have an hour which will be an hour and 20 minutes long on all the clocks in the country, they being circular machines; that extra 20 minutes has to be reckoned twice?—Yes.

1498. Is not that so?—Yes.

1499. Do you follow me about that?—Yes.

1500. In order to get the hour of 80 minutes, at three o'clock you put your clock back to 2.40, and you reckon 2.40 up to three o'clock over twice?—Yes, quite so.

1501. Now, in practice, how would you distinguish which hour it was, each time it was?—Well, now, when you want to advance your clock, you are taking 20 minutes out of the hour, are you not?

1502. That is easy?—When you want to retard your clock, you want to get 20 minutes more into the hour.

1503. Yes?—My suggestion is that the practical way is that at 10 minutes to three you would drop the minute hand back to half-past two straight away.

1504. You have already reckoned in that hour 2.30, 2.31, up to 2.40?—Yes, up to 2.50.

1505. Then you drop the hand back again and then begin to reckon again another 2.30, 2.31, 2.32, 2.33?—Yes.

1506. Apparently?—Apparently.

1507. How are you going to distinguish between these two sets of time?—That is one of the difficulties of the Bill. It takes place between two and three in the morning.

1508. You do not see in practice any practical way of doing it?—No.

1509. Then do you gather that the time selected, viz., Sunday morning early between two and three o'clock, is fixed upon?—Yes.

1510. Because, although there is an inconvenience in September, that is the time that it would be less felt by the community?—Perfectly.

 1511. That

Mr. *Pearce*—continued.

1511. That you understand?—Perfectly, that is why you fix the Sunday as the best time you can possibly fix.

1512. You cannot make any practical suggestion for getting over that difficulty?—No, I cannot.

1513. Your views are confined to the question of clocks; the general benefit of the community is not your point?—That I have well thought over as well, certainly I think the proposals in the Bill would be the best for the benefit of the community.

1514. Now let me ask you: The proposition is to use more daylight in the summer as being beneficial to the community, I take it you agree with that?—Yes, I do.

1515. Is there any advantage to the community in making it all the year round?—None whatever. I think the whole charm of the Bill would be lost if you did that.

1516. The whole object of it?—The whole object of it.

1517. And the use of it?—Yes.

Mr. *Richards.*

1518. We had a witness here a short time ago who like yourself is a very practical man, and he made a statement which is rather contradictory to your evidence. I should like to get to the bottom of it if I can. The question put to him was: "You do not see any practical difficulty?" And his reply was. "No; one suggestion is to make the change at two o'clock on one of the Sundays. I do not know how you are going to get over that; who is going to alter the station clocks.". "(*Q*) It has been suggested that it might be done electrically—electrical synchronisation. (*A*) Yes, that might come in time, but at the present time not one clock in a hundred is so arranged. It means a big expense, and it is unnecessary, because a good clock does not want synchronising." I think we had another witness here previous to that gentleman who said: "The best of clocks do not always keep correct time"?—Do you want my answer to that, Sir?

1519. Just one other point. He said: "Who could dream of synchronising 'Big Ben.'" I should say you would, would not you?—No, certainly not, not "Big Ben." That is an exceptional clock. I mean to say you must take things reasonably. I recently lectured on this subject on "The Time of a Great City," and my lecture was a plea for uniformity of public clocks. I think that would be a vast advantage to the community; in fact, if I could see any change effected, I should like to see this Bill running for both objects at the same time. From time to time there have been public outcries against "lying clocks." All the public clocks. If you go from Charing Cross or Westminster to the Bank you will find all sorts of times shown. That is a great scandal. It has been publicly referred to lately and shown to be a great scandal. Now on every occasion when that outcry is made the clock maker always says: "Synchronising! Sychronising is an insult to a good clock; it does not require it"; but while he says that about sychronising he never suggests a remedy, and it goes on the same as before, year after year. We have before us, as an example, Berlin. At Berlin they would no more think of being without their synchronised clocks than without their telephone. The same

Mr. *Richards*—continued.

thing in America and all over the Continent. It is always the cry of the British horologist; he is always against any progress. Now no two clocks will ever keep exactly the same time, I don't care how good they are; and therefore, as it is said in my lecture, instead of synchronising being an insult to a good clock it gives just the touch of perfection which it lacks, and it is a guarantee that that clock is showing Greenwich time; and as to all this humbug about the alteration of clocks being harmful to the clock, does it ever occur to you that people alter their clocks every week?

Chairman.

1520. In what way?—If you take the ordinary household where the clock is wound once a week, you never find that clock at the end of the week showing the same time as it did at the beginning when it was corrected.

Mr. *Richards.*

1521. At Euston Station, yesterday, I found three clocks which showed different times?—Yes; that is quite possible. The clock in this room at this moment is a minute fast or a minute slow. I forget which it is.

Mr. *Pirie.*

1522. I should like you to tell me what are the difficulties of the half-hour's change with regard to standard clocks; are they insuperable difficulties?—Oh, no; that is not an insuperable difficulty. 20 minutes is the easiest; as a matter of fact, any other period could be provided for.

1523. I do not quite follow why you say 20 minutes is easier than half an hour on a standard clock?—Oh, on a standard clock!

1524. Yes, I am talking of a standard clock?—An ordinary spring wound synchronised clock?

1525. Yes?—If you are going to make a half-hour alteration you would have to put special mechanism into the clock for it.

1526. There is no city in Great Britain where clocks are synchronised, is there, at present?—Except London; there clocks are synchronised by the Company that I represent; and where there are time bargains—wherever time is of importance—I think the importance of having clocks synchronised is fully recognised. The Stock Exchange for instance.

1527. That means an electric wire to each, does it?—Yes. For a small subscription we carry a wire to the clock, put the instrument into the clock and attend to it all the year round. The ordinary subscription is about three guineas a year, that pays for winding it the whole year through as well as synchronising every hour, day and night.

1528. How would that compare with the charge in most other cities?—The charge would largely depend upon the number of subscribers. As the number of subscribers went up, the charge would come down. My view is that the public authorities ought to look after the public clocks, and if they did so it would not cost more than a fraction of a farthing on their rates.

1529. I was not here when you gave your first statement. I do not know whether you alluded to the state of matters abroad. I understand that synchronisation is done much more frequently abroad than in this country?—Berlin

is

Mr. *Pirie*—continued.

is the model time-keeping city. Excuse my going back to your "half-hour." I am reminded that there is no difficulty in altering the clock half an hour by our synchronising system, but we should have to put an additional instrument into the clock. The illustration I was giving just now was with a view of not disturbing present things more than you can help. I take it that is the desire—you do not wish to disturb existing arrangements more than is absolutely necessary to effect the objects of your Bill. Now synchronising is very general throughout America and in the Continental cities. Berlin is, I suppose, the model time-keeping city of the world. There they have a certain number of clocks, six or more, which are called "normal clocks," and they show seconds hands, and they go, beat for beat, with the observatory clock, so that the people who require to get the exact time to a second, know where they can go and get it. They have small towers, small pillars (having come to the conclusion that a church steeple is not the place in which to put a public clock) as high as that door, at street corners and so on, and the municipal authority pays so much per annum for these public clocks. Some of them (the iron standards) are let out for advertising purposes, and are not at all eye-sores. They are illuminated and they bring in a large advertising revenue, and then the Berlin Company has private subscribers as well. What we suffer from in this country, Greenwich mean time being the standard time of the country, is that there is not a single place in London, for instance, where the official time of the country is officially shown, not one. The only place where it is shown, semi-officially, by any public authority, is in the Guildhall, where we sound a bell on the sixtieth second of the sixtieth minute. It is an extraordinary state of things; they would not stand such a state of things abroad. Berlin is the model time-keeping city. It seems to me that what we want here is a "time authority," and we have not such a thing.

1530. Does such a thing exist in Berlin?—Yes, the only question is whether such a "time authority" should be a Government authority or a private authority. Berlin has found that it is better to leave it to a private authority, a similar company to ours. In Berlin, the observatory only transmits the time to the Berlin Company, and that Company re-transmits the time all over the German Empire; it sends the time to all the railways, the telegraph and post offices and all the public offices; in fact, it sets the time all over the country by authority. You have no such thing here, and, as a Member of the Committee just now remarked, he observed a difference in the clocks at Euston Station. You have only a higgledy-piggledy state of affairs. I have been asked whether a household of a £100 a year, with four clocks, could have their clocks synchronised? Well, they would not do it, and there is no necessity for it. What you want is a sufficient number of reliable public standards to set the private clocks by, authoritative standards. If this Bill becomes law, you will see the newspapers saying: "Advance your clocks 20 minutes to-night," and people will do it. They would do it

Mr. *Pirie*—continued.

even without that, but when you come to the railways, and when you come to the post offices there is the necessity of synchronising wires to connect the clocks. The railways have wires, so have the post office. At 10 o'clock the post office time signal goes out. The time of our country (the time of Great Britain by the Act of 1880 is to be Greenwich mean time, as has been said) How does the country get it? The country gets it by means of the 10 o'clock signal which goes out over the post office wires. Just the moment before 10 all the wires are cleared throughout the country and the 10 o'clock signal goes through the whole country, and on that signal the post offices are supposed to correct their time.

1531. In the morning?—In the morning. Then they have a second signal at one, but the time of the post office signal for their own time purposes is 10 o'clock.

1532. The manager of the London and North Western Railway gave the Committee, in his evidence, a statement to the effect that they transmit this signal daily over 2,000 miles?—The railways do it also.

1533. I suppose all the railways of the country do practically the same thing?—Yes, all the railways. They send the signal all right, but then they do not alter their clocks—the clocks are not properly altered. Take the case of the post office. Here is another extraordinary thing—I don't know whether you are aware of it—the post office do not provide and maintain their own clocks. This is done by H.M. Office of Works.

Chairman.

1534. Why do not they alter their clocks?—They ought to have them attended to. The post office have got the wire, they have got the signal which would synchronise their clocks with the aid of simple relays to provide sufficient energy; it is the simplest matter in the world, you would think. In every public post office they should have at least one clock synchronised and put a badge on it; if you have two clocks one showing three minutes to the hour and the other three minutes past the hour, it does not follow that both are necessarily wrong, but one must be wrong, perhaps both are, but you have a difference of six minutes straight away. With one synchronised clock available the error of one or both such clocks can be readily ascertained. You see all this is very interesting. This Bill in my opinion should go very much further than it does.

1535. Then, in your opinion, if the post offices throughout the kingdom had one synchronised clock the difficulty of changing the time would be very materially lessened, even if it did not disappear altogether?—Certainly, I say so. The experience of so many years has shown that hand alterations cannot be relied upon, and the time has now come when there should be official standards in every town. The hand alteration of clocks is of no good to the railway; it must be mechanically effected at frequent intervals to be of any real service in securing uniformity.

1536. One more question. Can you give me a rough estimate of what would be the cost of the

Chairman—continued.

necessary machine to synchronise one clock in a post office ?—About a sovereign I should think, sir.

1537. Once for all ?—Yes.

1538. We had a witness here representing the British Horological Institute the other day, and he expressed very invincible hostility to the methods contemplated by this Bill. He said he could speak both for the Institute and for himself in recommending a permanent alteration of one hour, that is to say, adopting what is known as Mid-European time, which is an hour faster than Greenwich time. Have you anything to say with regard to that view held by a member of what you would probably consider an important Institution ?—I have already answered the question, I think, by saying the whole object of your Bill would be defeated by that; it would spoil the whole thing.

1539. His view was that certain European nations had discarded local time, and adopted Greenwich time as regards the minutes and quarters and seconds; that it would save a considerable amount of possible confusion if the same standard were adopted in this country for the purposes of this Bill; that it would cause much less possible confusion than the four separate

Chairman—continued.

alterations of the clock might conceivably involve ?—My view is that if you alter the time an hour, if you come to the conclusion that that is the right thing to recommend, although I do not agree with it all—permanently an hour—you would not want to alter the clocks at all.

1540. How would you obtain the advantages proposed to be conferred by the Bill ?—I think you would obtain them by passing an Act of Parliament under which all post offices, all Government offices, all public houses, in fact, all banks and things of that kind—which would automatically control the movements of the community should be forced to open and close an hour earlier.

1541. That would be coming back to the same thing. If you obtained legislative sanction to an arrangement by which one hour would be gained you would be discarding the proposals suggested by this Bill and recommending what Mr. Wright recommended ?—I do not recommend that at all. I recommend the proposals of this Bill.

1542. You recommend the proposals of this Bill preferably to any other alteration ?—Undoubtedly.

(*The Witness withdrew.*)

Mr. FRANK HOPE-JONES called in; and Examined.

Chairman.

1543. You are a member of the Institution of Electrical Engineers, a member of the British Horological Institution, and you have devoted yourself to the application of electricity to horology. Will you tell the Committee briefly what advantages you consider would be derived from Mr. Willett's Bill, and any objections, if you have thought of any ?—I most heartily approve of Mr. Willett's Bill in every detail. I have not only the ordinary reasons which we almost all hold in favour of it, but I have the reasons which Mr. Winne has partly expressed, I think well expressed, that is that it would be beneficial in that it will produce, I hope, a saner method of time-keeping generally. Our methods, as you have heard from him, are very far behind those which are commonly used by almost every other civilised country. He has spoken particularly of the facilities that electricity has to offer in making the necessary alterations to clocks. The point of view he has taken up is naturally one of very wide importance, dealing as he does with existing clocks, and he has shown how synchronisation controlled by a proper organisation will assist the carrying out of the objects of the Bill by altering those clocks easily. I can go a little bit further in the same direction, because I think I am peculiarly competent to speak for a new branch of our electrical profession, that is the science of electrical time service by means of electrically propelled impulse clocks. It may be a surprise to you gentlemen to know that there are some 10,000 clocks in this country which are not clocks in the ordinary sense, but only have one wheel and an electro-magnet behind it. Some large institutions and big buildings are equipped

Chairman—continued.

with 150 clocks in each, which keep absolutely uniform time and require no winding up because they are electrically propelled by this new little branch of our electrical profession. With respect to all such clocks (and their number is growing with great rapidity) they can be set forward or backward with infinitely greater ease than even you have heard can be done with respect to the existing clocks by the method Mr. Winne has been describing. In order to make the matter clear, Mr. Willett suggested that I should bring with me a little example of the method so used. (*The Witness produced a model containing a controlling clock with two dials.*) The mechanism behind these clocks is absolutely simple—one wheel and a magnet behind each. *This* is the one controlling instrument which measures the time for both or any number of dials. There may be any number of them. If you want to advance the clocks any pre-determined amount of time, you have nothing to do but press a button and advance them all half-minute by half-minute as far as ever you like. One would, of course, arrange that those responsible for these large electric time circuits in great buildings, or this aggregation of a number of buildings, perhaps down one side of a street, a certain section of the town—because it is now frequently the case that a number of buildings are linked up on to one time-measurer controlling pendulum, or central master clock—one would arrange for someone responsible for looking after this building, say a caretaker, to be employed at two o'clock each Sunday morning in April to set forward the whole of these clocks 20 minutes; there may be hundreds, or even thousands in a collection of buildings in the

Chairman—continued.

the City which might be so dealt with in a moment.

1544. What would be the cost of such a central system ?—The cost of such a system, would be £2 per clock, including wiring and everything. It is a most common thing nowadays for my profession to take a large institution, a hospital, industrial establishment, or an asylum, and put in a hundred clocks for £200—a complete installation —£2 per clock.

1545. £2 per clock a year, do you mean ?—No, purchased out and out, the purchase price, first cost, the whole thing.

1546. The value of the clocks included ?—The value of the clocks included, the cost of wiring and everything else.

1547. Is that what you call the "magneto-electric clock" ?—It is somewhat similar; for your purpose it may be considered the same. It is one of many systems of electrical impulse clocks. The method of setting back can be, if desired, just the same as setting forward, except that one would turn a switch and press another button, and they would then go backwards as rapidly; but in that respect I ought to mention that many thousands of such clocks already existing are not equipped with means whereby they can be set back instantaneously except to a limited extent on board ships; consequently I have devised here mechanism which would enable you to set them back quite simply, although they are not provided each one with a special apparatus to enable you to do it instantaneously. The method is this: If you require to set this back 20 minutes all you want to do is to open this one dial here of the master clock (*illustrating*), press this lever, turn the hand back 20 minutes, or as far as ever you wish. For the purpose of Mr. Willett's Bill we should alter this and we should put a stop there at exactly 20 minutes to the hour, so that at two o'clock in September every Sunday morning you would simply turn the hand back 20 minutes, and you could not possibly make a mistake. The fact of having turned the hands of that clock back has disconnected all the other clocks in the circuit, they are now dead and have to wait; consequently, you see now, when I am pressing this button for the purpose of demonstration—we need not wait 20 minutes; we will gallop along as fast as we can and assume the 20 minutes to have passed—you will observe that this dial (*illustrating*), like the other dials connected with it, is idle, and will be until the hand of the master dial comes to the spot from which it was moved, and then automatically it switches in the others. This is merely a little device of my own to enable us to apply the convenience of rapidly setting back existing circuits of electrically propelled clocks of which I estimate there are close on 10,000 in this country now, and without any question there will be 20,000 before this time next year.

1548. Is that a British patent ?—This one, yes; I happen to be perhaps the godfather of that little branch of my profession in this country. I have been at it 10 years developing this means of electrical impulse clocks, but I am glad to say now I am no longer alone. In the last two or three years many very active commercial

Chairman—continued.

organisations are with me in developing this system.

1549. May the Committee take it from you that the gradual alteration of clocks suggested by the Bill is perfectly feasible ?—Absolutely feasible, feasible, even with regard to existing clocks of any kind; and I go so far as to say, with regard to the limitation which Mr. Winne hinted at as to striking clocks, that there will be no difficulty in overcoming that; if the demand arises, the supply will be there. There will be no difficulty in altering all clocks in accord with the provisions of this Bill; and with regard to the modern science of an electric time service, they will be made from this time forward with a view that they shall be so altered. I have no doubt, because it is as cheap for us to do that as anything else.

1550. Is it striking or non-striking ?—Both. With respect to striking clocks we are now doing without the complicated mechanism of the ordinary key-wound turret clocks and are doing it by little electric motors, and they can as easily be set back 20 minutes four times a year and set forward 20 minutes four times a year as this can.

1551. Now does the Standard Time Company use your patents at all, do you know ?—I look upon them as allies, Sir, because we are both at work in the same science. Their speciality is synchronisation or correcting of existing clocks. Mine is another branch of the same profession, and in a sense quite a different thing, the electrical propulsion of groups of dials. I use the Standard Time Company's methods and they use mine, because, wherever I have a large building equipped with clocks controlled by one pendulum apparatus or balance wheel apparatus like this clock, I use their signal to correct my controller exactly to the tenth part of a second every hour on their excellent service. Consequently I have security that all the dials operated by it in that group will be equally Greenwich time.

Mr. *Pearce.*

1552. The regulation of the existing clocks is the point; we want to see that there is no difficulty about that. I understand from you that there is no difficulty about the regulation of existing clocks ?—None.

1553. Have you considered the general question as to the convenience to the community of this proposed mode of dealing with it in the Bill ?—I have, Sir, very thoroughly, from the very first time Mr. Willett's pamphlet was published, and I am in most absolute accord with it and sincerely hope it will be made law.

1554. For summer alteration only ?—For summer alteration only.

Chairman.

1555. The Committee may take it from you, may they, that you do not consider there would be any difficulty in carrying out the provisions of the Bill as regards the gradual alteration of clocks—the eight alterations contemplated by the Bill ?—That is so; there is no difficulty in that respect, Sir. I would say, if I may reinforce what

Chairman—continued.

what I heard Mr. Winne say just now, that the difficulty raised by the trade, the somewhat old-fashioned trade of mechanical clock makers—is (not to put too fine a point upon it) a "bogie."

Chairman—continued.

1556. Should you prefer the mode of procedure recommended by the Bill to any other method of which you have heard?—I do prefer that.

(*The Witness withdrew.*)

Mr. ALFRED JOHN MARTIN called in; and Examined.

Chairman.

1558. You are a Fellow of the Surveyors' Institute?—I am; and the author of "Martin's Tables of Time, Weights, Measures and Coinage," a subject I have taken an interest in for some years.

1559. We have just heard from Mr. Willett that you were at the Cape when a change of time took place; were you?—Yes, when they made the half-hour change.

1560. Had you any official position, any public position, at that time?—No, no public position at the Cape.

1561. What are the impressions that you gathered from the alteration that took place in the general time at the Cape?—It caused no confusion whatever. I respectfully beg to differ from Sir David Gill, the late Astronomer Royal at Cape Town. I understand, he gave evidence that he was responsible for the change. When you realise that the territory with which he had to deal, Cape Colony, is equivalent to a stretch of country from Land's End to John o' Groat's House, with very few railways and very few telegraphs, and that he would have to be responsible for communicating to the post offices in all those dorps, two or three days' journey, perhaps, by Cape cart, and two or three days back, perhaps it did cause some confusion to him, he being solely responsible, but I am prepared to affirm, as one of the public, that it caused no inconvenience whatever to them; in fact, as it was to be a permanent change, one would think that on an occasion like that there would be a band present to play "Auld Lang Syne" or something, or that there would be some interest taken in it. I went down to the General Post Office to see what was going on, and I was the only witness outside the post office when the change was made.

1562. What time in the day was it?—Half-past 11 at night was made 12 o'clock, midnight, and I am afraid Sir David Gill's memory in giving his evidence has perhaps failed him to a certain extent, for, if I remember rightly, it was made one Saturday night so that the inconvenience would be to the people going to church next day, not the hullabaloo at the railway station, and I suppose if this change contemplated by the Bill was brought about there would be an announcement in all places of public worship, the same as there.

1563. So that your impression is that the change took place without any social disturbance of any sort as regards domestic arrangements?—Absolutely so.

1564. Or official?—I mean men did not talk about it next day more than they would on board ship.

Chairman—continued.

1565. Then your view is that the methods suggested by this Bill are very practicable and feasible?—Yes, I think so. I was here to give evidence on the matter of the Cape only, but personally I should sooner see three half-hour changes than four 20 minute changes.

1566. The analogy of the Cape is hardly a parallel with this, I take it; I suppose that was a permanent arrangement,—an immutable thing; once it was done and put through, people thought no more of it, whereas this Bill contemplates a yearly change of a certain magnitude—eight alterations during the year?—Yes, but the fact that it was to be permanent at the Cape, one would think, would make people take more notice of it; but they did not; they did not take any notice of it to talk of, and the people are not of the opinion, as I understand Sir David Gill said, that they had been cheated into getting up earlier. He was responsible for many people in Cape Town getting up earlier and no one is any the wiser at Cape Town; they go on in the ordinary way; perhaps some of them have been living there for years and do not know that this change occurred.

1567. Can you tell the Committee whether, if the change had been a six-monthly change instead of a permanent one, it would have been effected with equal equanimity and absence of disturbance?—I certainly think it would have caused no more disturbance.

1568. No more than the permanent change?—We should get quite used to making the changes.

1569. You are quite certain about it?—No one can be quite certain.

1570. But from what you have observed?—From what I observed there, I am quite convinced that it will not cause all the trouble imagined. I am afraid it is rather an insular way that we have of looking upon changes as causing trouble; at any rate, if it were tried for a year or two we should soon know. It is worth trying.

1571. Have you anything to say as regards the alternative suggestion of a six-monthly alteration of one hour. Does that possess any attraction for you?—The only attraction is the six months change in the summer.

1572. An hour change instead of the change as foreshadowed by the Bill?—Yes, or two hours.

1573. Which would you prefer, the change of the Bill, an hour and 20 minutes, or would you prefer an hour's change for six months or the five summer months?—I think an hour is a very short time; it would be a very little alteration to make. If we changed to two hours in the summer months, we should have the same time as the Cape to Cairo time. We could go to that or we could

go

Chairman—continued.

go to Mid-European time, and then back again or go on an hour and a half. Personally, I would like to see the change kept to a standard time or a semi-standard time.

1574. Carrying out the proposals of the Bill, an hour and 20 minutes?—The principles of the Bill, but not the hour and 20 minutes. There are 24 "longitudinal time zones" round the world, and I do not at all see why for six months in the year we should not have a latitudinal change of time.

1575. Of how much?—As I say, for one hour or two hours.

1576. Either one or two hours?—Yes. By consent of European countries, leaving out the three southern peninsulas. This change of time need not take an exact latitudinal line; that is to say, they could keep to the southern boundary of France, and leave Spain out perhaps and the two other southern peninsulas.

1577. Are you indifferent as to whether the change is one hour or two hours?—I am indifferent as to that.

1578. You think the objects of the Bill would be equally attained either by the one hour change or a change of two hours over Greenwich time?—Yes, provided we should not get ahead of the time adopted in Mid-Europe. I do not think it would do for us to be ahead of Berlin, but if Berlin said she would go on one hour, I do not see why we could not go on two hours.

1579. You would make it conditional on Berlin accepting two hours; if they did not accept that, you would only adopt Mid-European time?—One hour. There is a difference of 10 hours in daylight between winter and summer, five hours in the morning and five hours in the evening. I do not think that, out of five hours, two hours would be too great a change.

1580. Judging from your experience of South Africa, do you think three or four alterations could be made with equal facility as the alteration that was made at the Cape?—Yes, certainly. We have greater facility here with the telegraph, and so on.

1581. With equal facility; that is to say, the minimum of disturbance?—Yes.

1582. I ask you whether three or four alterations during the year could be made with the same absence of disturbance as that to which you have just testified as having taken place at the Cape?—Yes, I think it could be done easier here, because there would not be two or three days' journey in Cape-carts for the postmen.

1583. The United Kingdom I am asking you about?—It would be easier here if possible.

1584. The gradual alteration would be easier?—The greater number of alterations would be easier than completing the change in one day.

1585. The great number of alterations would be easier than one alteration?—The greater number, yes.

Mr. *Pirie.*

1586. You stated that you would prefer the three half-hour changes to four 20 minutes changes; why?—Well I favour the system of the 24 time zones round the world, the 24 zone times that the world is practically split up into. I think it is not fairly realised what a great deal of use can be made of that from an educational standpoint. Anywhere on the equator the distance is 1,000 miles per hour. It is a very simple thing for a child to learn the time zones, and that a town in a time zone one hour ahead of Greenwich, would be 1,000 miles to the east of Greenwich, and three hours ahead of Greenwich, would be 3,000 miles east of Greenwich, and so on; that is on the equator, and if you go to forty-five degrees, it is 750 miles.

1587. You prefer the total change being an hour and a half to one hour and 20 minutes?—Yes.

1588. For that reason?—Well, that is not perhaps a very important reason, but I think it is a very useful way of teaching geography.

Mr. *Pearce.*

1589. Speaking of the question of whether it should be one hour or two hours change, have you considered that an alteration of two hours in the morning in the summer time would leave very little margin between daylight and work in Great Britain?—The two hours?

1590. Yes.—It depends upon what class of work; that is to say, it is light at 4 o'clock now; there are some people who begin work, I know, at 4 o'clock.

1591. All work has to be preceded by a breakfast time you know, and the getting of the house ready, you want an interval for that?—Well, I thought there were many men who work before breakfast.

1592. There are many men who work before breakfast, but every man has to get up, to get to his work, has he not?—Yes.

1593. I am suggesting to you that the plan of taking an hour and a half, not more than an hour and a half, in addition to the present usage of time, would be quite as much as we could do with, taking it out of the morning daylight in England, is that so?—Yes, that may be so.

1594. Speaking of the convenience of the community, is the hour change better than the two hours, or not?—I should think there would not be a great deal of difference, but I heard three-quarters of an hour spoken of; that is very small.

1595. I am afraid you do not apprehend that which I am saying. Which is the most convenient time for the community, the hour change or the two-hour change in Great Britain?—I should think that they would both be very similar.

1596. Take this morning, for instance; would it have been quite as convenient for you to have been here two hours ago, as it is now?—Yes, I think it would.

1597. It would have started you two hours nearer the dawn this morning?—Yes, it would.

1598. Do you think that what would apply to you would apply to all the rest of the community?—No, I do not say that.

1599. Let us get it clear. The Bill seeks to hit off the exact time at which we are to begin work in the summer; you say whether that is two hours or one hour earlier does not matter. I want to know whether it does matter or not?—It might to some people. I think if we tried the

Mr. *Pearce*—continued.

the one hour for one or two years, we should find that we could then go to the two hours.

1600. Do not you think, in the case of all factories and all mills that started at a regular clock time, an addition of two hours earlier than that clock time would be a severe tax upon the people who are there employed ?—I understand the Bill is so that we could adopt time suitable to the latitude that we happen to be placed in, and we are five hours earlier in the summer than in the winter. I should have thought that two hours would not have been too great.

1601. That question is, which would be most convenient for the people; that is the whole thing ?—It remains to be proved, it seems to me. I do not wish to differ from you in any way.

1602. Now let us be quite fair to Sir David Gill. His letter to the "Times" was more exact and careful than his evidence here, let me say that. Now the letter to the "Times" spoke of the change which was made in 1892 ?—I was not there at that change.

1603. At that time, as his letter shows, every little town in South Africa had its own local time, is not that so ?—Yes.

1604. And the change then proposed was to do away with all the local times and agree to one of the "hour zones" ?—Yes.

1605. That was a problem of far greater difficulty than the change at which you were present, when they had already got in the Colony the one-hour zone ?—The first change was 16 minutes.

1606. The first change was from local time in every little village and place everywhere to a common time ?—Yes.

1607. That was the first change, in 1892 ?—Yes.

1608. Then you had already established a common time all over the Colony in 1892 ?—Yes.

1609. Then when the second change took place it was a mere alteration of that common time to one other of a half-hour ?—That is so.

1610. Therefore what was done in your time was very much simpler than what was done in 1892 ?—There were three changes.

Mr. *Pearce*—continued.

1611. There were two changes, one of 16 minutes the other of half an hour ?—There was the change to get them all to adopt the one time; then there was the 16 minutes, and then the 30 minutes.

1612. Surely it would be much easier to change the half-hour when a common time had been established than to get all the little villages and towns to abandon their local time and to agree upon a common time. Surely that was much the most difficult thing to do ?—I was trying to make it clear that when the 16 minutes change was made it was no more difficult than to make the 30 minutes.

1613. No more difficult ?—You mean the 16 minutes.

1614. When it was made, then it was easy to change it by the half an hour ?—Yes. They got them to adopt the same time all through the Colony; then you got the 16 minutes change.

1615. You got them all to adopt the same time throughout the Colony. I agree that that was the most difficult job Sir David Gill had to do ?—Yes, I understand that was before 1892.

1616. That is the one which in his letter he says was the difficulty ?—I suppose that is what he must have meant.

1617. I only want to have it quite fair to him. Of course the half-hour change was a comparatively simple matter ?—There was no educating the people up to the change there, it was all so simple.

1618. That had all been done in 1892. I do not know whether you remember the change in England in 1880, when we adopted Greenwich mean time all over the country here ?—No, I cannot remember that.

1619. I do remember it, and I remember the great difficulty there was in various places in England, in abandoning their local times and adopting Greenwich mean time. We had the same difficulty here, though it was not so serious ?—I see only a year ago a Parish Council in Kent passed a resolution to adopt Greenwich time.

(*The Witness withdrew.*)

Thursday, 28th May, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Pirie.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Sir GEORGE LIVESEY called in; and Examined.

Chairman.

1620. You are the Chairman of the South Metropolitan Gas Company?—Yes.

1621. Have you considered the provisions and the objects of this Bill?—Well, I only know the Bill generally; I have really not read it, I do not know that I have seen it, but I understand the salient point of it is that the clocks are to be altered 20 minutes in each of the four Sundays of April one way, and altered back the four Sundays in September, so as to make the working time begin in the four summer months an hour and 20 minutes earlier. I suppose that is the essence of it.

1622. Does that principle commend itself to your judgment?—No.

1623. The principle does not?—No, I thoroughly believe in the object.

1624. Do I understand you to say that you disapprove of the principle, apart from the methods?—I disapprove altogether of Parliament interfering in a matter of this sort.

1625. Will you go on and develop your arguments, please?—As to the object of early rising, I am thoroughly in favour of it; I always have been, and should be very glad to see it, but I have been asked more particularly in reference to the "enormous saving" it is supposed it will effect in artificial lighting. I am interested in the use of artificial light, of course, but I wish to say that the great advantage of an hour and 20 minutes' extra time in the fresh air of the morning is so great that the question of any loss to suppliers of artificial light fades into insignificance. I do not wish to consider that at all. I had perhaps better deal with that first, Sir. I have read Mr. Willett's book, and I have read his estimates of the saving. He estimates the gain in the cost of artificial light at one-tenth of a penny per hour, for each indvidual inhabitant in the country. Well, I cannot follow those figures, but I have thought it better to take the case of the South Metropolitan Gas Company. We supply, roughly, 8 per cent. of all the gas supplied in the United Kingdom, and I have taken the consumption of gas (we have it) hour by hour, and I have here a statement of the total gas consumed between nine and 10

Chairman—continued.

p.m., 10 and 11 p.m., 11 and 12 midnight and one and two o'clock. I do not think this Bill would make any practical alteration in the quantity of gas consumed between nine and 10 o'clock. People would not go to bed before 10 o'clock, and although there are some of the smaller shops that do keep open until 10, they would probably close at nine if the alteration was made Still I do not think that would make any appreciable difference. I will assume that if men have to begin to work one hour and 20 minutes sooner they would probably go to bed an hour sooner. It is very doubtful, because, talking to one of our men yesterday, an engine-driver (he is one of our workmen directors), he said: "You know, Sir, working-men go to bed as a rule about 10 o'clock, 10 to half-past. They must go to bed at that time in order to be fit to get up to their work at six o'clock in the morning. Now we should not go to bed at nine o'clock in the summer months, in daylight; we could not go to bed at nine, and therefore," he said, "if we were to begin work an hour and 20 minutes sooner than we now do, we should not have enough sleep." Still, I will assume that from 10 o'clock there would be an advance, so to speak, of an hour, and that the consumption of gas, if this Bill passed, would be from 10 to 11 the same as it is now from 11 to 12, and from 11 to 12 it would be the same as it is now from 12 to one, and from 12 to one it would be same as it is, perhaps, from one to two. I have gone quite far enough in that. Well, perhaps it would be shorter or less complicated to take the three hours from 10 to one, and compare the consumption of gas in the three hours, 10 to one, with that from 11 till two, and I take it that if the Bill passes, the gas consumed from 10 to one would be the same as it is now from 11 to two. Well, in our company, in the four summer months (I have not taken into account April or September, but I can add that if you like), we sent out 518 millions of cubic feet of gas in those three hours from 10 to one.

1626. I am sorry to disturb you, but the question of the saving of artificial light illuminant is only a subsidiary point?—Quite.

1627. What

Chairman—continued.

1627. What the Committee are very anxious to know from you is how it would effect your own workmen—what influence it would have upon the general economy of your company ?—Yes. I will come to that at once.

Mr. *Holt.*

1628. As we have got half of the statement might we have the other half.

Chairman.

1629. Yes. (To the *Witness.*) Will you go on, please, from where you were ?—Well, instead of consuming 518 million cubic feet, there would only be 297 million cubic feet used, or a loss to us of 221 millions. Well, that 221 millions would amount, in the case of our company, to about £24,000 of revenue and about £7,000 profit. I have assumed ours to be 8 per cent. of the whole of the gas used in the United Kingdom, and I find that on taking the price of gas at 2s. 9d. per 1,000 cubic feet on the average—which is quite high enough—the saving would only be £380,000 in those three hours.

Mr. *Pirie.*

1630. In place of what ?—Well, of course, Mr. Willett has got £3,820,000. £380,000 is just one-tenth of it; but then that includes all artificial light, I suppose. Mr. Willett says that a saving of 210 hours at one-tenth of a penny per hour for each inhabitant would amount to £3,820,000. Now I do not think, so far as the gas is concerned, that the saving would be more than one-tenth of that; and gas is certainly one-half of the total illuminant of artificial light, so that the money question, Sir, is a matter of no importance.

Chairman.

1631. You said just now that you approved of the objects at which the Bill aims, but not of the principle ?—Yes; not to be done by Parliament. The object, of course, is to begin work earlier, and to end it earlier than at present, but there are great difficulties in the way. Not feeling that I have quite the right to speak for men generally without consulting them, I yesterday called together two bodies of our workmen and the clerks, each separately, about 200 workmen in the first body. I explained the matter; perhaps it may be said: "Well you do not like it"; but, though I have no feeling against it, I do not believe in it. I explained the matter, as I think fairly, and I then said to the men: "Now will you talk the matter over among yourselves, and then I will take a vote." Of the 200, 13 held up their hands in favour of the alteration and all the rest against it. They begin work at six o'clock in the morning. I then went to another body of men, quite 400, and put the same thing to them, and there was not one in favour of the alteration; every hand was held up against it. They said: "What would it mean to us ? If we come late at six o'clock, say, we lose an hour, and it would cause a great deal more loss of time. As far as we are concerned we would much rather begin at six o'clock than at 20 minutes to five." They were dead against it. Then I went into to the office, where there were about 200 clerks and inspectors, and I put the matter to them, and I asked them to talk the matter over amongst themselves; I gave them about five minutes; there was an amusing hum of conversation. Of the clerks, six held up their hands in favour of the alteration and all the others against it. Some of the workmen said: "We should like better to begin work later rather than earlier"; and going home last night I went with a friend, a Mr. Hazeldine, who is in a large way of business in the Borough as a cart and carriage builder. We had some talk about it. He said: "Well, a few years ago I put it to our men" (their rule was to begin at six o'clock) "and I asked the men: 'What would you rather do; go on with the present hours, begin at six and end at five, or begin at seven and end at six ?' and 90 per cent. of them were for beginning at seven and ending at six, and so it was settled.". He said: "Of the remaining few (I saw them individually) I found that there was some personal reason against the change. One of our men said: 'I think this is a dodge of some clockmaker to upset the clocks.'" I only repeat what was said, for what it is worth.

Chairman—continued.

1632. That happens to be diametrically opposed to the evidence of some of the representatives of labour that we have had before the Committee ?—Yes.

1633. I mean provincial representatives ?—How have they taken it ?

1634. They represented industrial enterprises. A Member of our Committee (Mr. Richards) told us that in certain enterprises with which he was connected they already had adopted the method of this Bill, and that it had worked extraordinarily successfully ?—What ! beginning work earlier, do you mean ?

1635. Beginning work earlier and leaving off earlier. However, that is neither here nor there. You seem to be under the impression that this Bill is mandatory, that it is compulsory ?—Well, of course, it cannot be.

1636. Well, it is not ?—And it cannot be.

1637. All the Bill seeks to provide, and all that it does, is to give people opportunities of starting work earlier, and consequently leaving off work earlier, if they so choose to do ?—Exactly.

1638. And that is all it does; but, as you know perfectly well with your enormous practical experience, no change of this magnitude could possibly be expected to be effective unless it had some sort of legislative sanction behind it ?—Quite so.

1639. That is the whole, that is the kind of sanction that this Bill gives; it enables a widespread economy for this country to be worked upon that basis and that is all ?—Well, as I have said, if it were passed I should leave it to the vote of our men to do what they thought best. One man said: "We should want more money to spend if we left off work earlier."

1640. That is very much upon a par with what somebody

Chairman—continued.

somebody said who gave evidence objecting to the Bill; because he said some of their people would have to appear in dress clothes soon after four o'clock in the afternoon?—It is a more serious thing than that. If the workman spent more money on pleasure they would have less for their home.

1641. On the other hand, we shall have the public-houses closed earlier?—That could be practically done without this Bill. If the public-houses were to close at 10 o'clock it would be a great boon.

1642. It has not been able to be done, so far.—No.

Mr. *Holt.*

1643. Would you mind telling us what are the hours that this working-man director that you mentioned in your evidence works?—He is on the 12-hour shift—six to six—as an engine-driver.

1644. And these men whom you assembled?—All ordinary day workers.

1645. As to whether they would rather work earlier or later may be considered by the hours they actually do work?—Our hours are from six to eight o'clock, then we give three-quarters of an hour for breakfast, then they go to one o'clock, have from one to two for dinner, and they leave off at five o'clock.

1646. Those are the hours of all the men?—All the yard men except the gate-keepers and the engine-drivers; they are on the two-shifts system.

1647. Quite so; but all your other men work those hours?—Except stokers; many of those work on the three-shift system. I was speaking of the day workers. The Bill would not affect the stokers, whose work goes on night and day.

1648. Now about your clerks. What hours do they work?—Nine to five.

Chairman.

1649. I would like to ask you another question, Sir George. Assuming that you approved of some sort of legislative machinery being applied, what sort of alteration of time would you be prepared to recommend. Would it be a gradual alteration as suggested by the Bill, or would you be in favour of, say, an hour for six months?—It would be better, I should think, to have as few alterations as possible; one hour would be better than three twenty minutes.

Mr. *Pearce.*

1650. I gather from an answer you gave just now that your men all work in shifts?—No. These were all day workers. I spoke about the stokers. It would make no difference to them; they work in three shifts, and their times of change are 10 at night, six in the morning, and two in the day; it would make practically no difference to them: I did not ask them. They were day workers, whose time is from six till five, with an hour and three-quarters for meals.

Mr. *Pearce*—continued.

(*The Witness withdrew.*)

Mr. *Willett.*

1651. Before you have the next witness, may I say that I have received a letter from the Chamber of Commerce, Derby, which I would like to read to you. It is dated the 27th of May, and says:

"Dear Sir,

"The Waste of Daylight Bill has been to-day considered by the Council of the Derby Chamber of Commerce, and I am desired to inform you that the principle of the Bill has their hearty support, but, in their opinion, the change of time in April and September should be by one alteration of an hour rather than by several alterations of 20 minutes each."

In addition to that, Sir, I have received this memorial from the Albion House Workmen's Club and Institute, Limited, Station Road, Ushaw Moor, Durham. It is dated May 26th, 1908.

"Dear Sir,

"I am requested by the Committee of the above Club to inform you that the Daylight Bill has our entire support."

That is a workmen's club. I have also received from the North Staffordshire Railway Miniature Rifle Club this letter, dated May 27th.

"Dear Sir,

"Daylight Saving Bill.

"The Committee of the North Staffordshire Railway Miniature Rifle Club, at their meeting held at Stoke on the 26th instant, unanimously passed the following resolution:—'That the principles embodied in the Daylight Saving Bill, now before a Select Committee of the House of Commons, receives our hearty support, and we consider that the change proposed is eminently desirable in the interests of all outdoor sports.'"

Chairman.

1652. Our colleague, Mr. Pearce, has received a letter from the Motor Union of Great Britain and Ireland, which is to this effect. It is dated 27th May, 1908.

"Dear Sir.

"The General Committee of the Motor Union of Great Britain and Ireland, which represents the general body of motorists throughout the country, passed a resolution at their monthly meeting on Saturday last, approving of the general principle of the Daylight Saving Bill. If it would be of any assistance, I should be very glad to give evidence on behalf of the motoring community before the Committee."

I think we may leave that for consideration later.

Mr. STANLEY MACHIN called in; and Examined.

Chairman.

1653. You are a partner of the firm of Batger and Co.?—I am, yes.

1654. And Deputy Chairman of the Council of the London Chamber of Commerce?—I am.

Chairman—continued.

1655. And President of the Manufacturing Confectioners' Alliance?—Yes.

1656. Do you appear here by a special resolution of the London Chamber of Commerce?—I do.

Chairman—continued.

1657. I see you had a largely attended general meeting of the Chamber?—Yes, on Tuesday, the 19th of this month.

1658. What resolution was it that was then passed. Will you kindly read it?—The resolution was as follows:—"That this meeting of members of the London Chamber of Commerce, having heard the address by Mr. William Willett, approves in principle of the provisions of the Daylight Saving Bill, now before Parliament, and requests the Council to take such action in support as it may deem advisable."

1659. Was that passed without any dissentient voice?—I may say with enthusiasm, without one dissentient.

1660. That practically commits the London Chamber of Commerce to the view that they are in favour of the Bill?—That does, Sir, wholly. That was a meeting called to discuss it.

1661. It is what you call a "plenary" meeting?—Quite so.

1662. Now will you kindly develop your views with regard to this matter?—Well, Sir, speaking as a manufacturer, as well as the Deputy Chairman of the Council of the London Chamber of Commerce, I may say that I have had a great deal of experience with the workmen of London, especially in the East, and my knowledge has been that all the workers have preferred to start earlier in the morning, if they could leave correspondingly earlier in the evening. Some years ago we used to start at eight o'clock, but at the suggestion of our managers, we altered our hours by making them half-past seven, leaving correspondingly earlier in the evening, and the result has been most satisfactory. I have also taken an opportunity of putting the suggestions contained in this Bill before the workers in my factory, and, without one exception, all have been in favour of the proposed alteration. I believe that it would be an immense benefit to the working classes of this country. The saving of expense (although I do not agree with the suggestions put forward by Sir George Livesey) is a minor matter. I think it would be an immense gain, especially to the working classes of this country, if some such Bill as is sketched here before us came into operation. I may say also, Sir, that I believe it would be a distinct gain to the cause of temperance. I have, in the course of my business career, spent a great many evenings in the East End of London, and my experience is that the public-houses are more generally patronised after twilight, and if the working classes were able to engage in some healthy outdoor exercise in daylight I firmly believe that the public-houses would be less largely patronised. The men would go home, say, from their work or their amusement, practically at the time to go to bed, and therefore, say, at ten o'clock in summer time, when daylight failed, they would have no inducement then to spend an hour or two in drinking, as I fear is now often the case.

1663. Do you think the Bank of England, and other important banks, would be able to adjust their hours of opening and closing?—I do not believe there would be the smallest difficulty about that. I may say it has been suggested

Chairman—continued.

by one distinguished witness here that if the Bank of England would put forward its time by one hour the whole results which this Bill aims to obtain would be gained. I think, Sir, that that is really quite absurd. I may remind the Committee that the London bankers (some ten years ago it may be) altered their time on Saturdays from two o'clock to one o'clock, and the gain to the general working commercial body has been absolutely nil. Of course, if the bankers and those financial houses that depend upon them would alter their hours of business it would be a gain, undoubtedly, to those directly concerned.

1664. You mean the result has been nil, because the change has not been universal?—The change has not been universal. The change has had no effect at all on the general body of workers. There must be difficulties and inconveniences in an alteration of this kind, clearly, but the only serious difficulties I have had presented to me, and I think they are quite easy of adjustment, are those in connection with foreign markets, Stock Exchange markets, especially in the western hemisphere, where I can quite see that the times that calls are received at certain times of the day will lead to a certain disarrangement and difficulty for the time being, but I see no difficulty at all in re-adjusting them.

1665. Will you tell the Committee how many persons were present at the meeting of the London Chamber of Commerce when the resolution was passed?—I think about 150 to 200.

1666. You consider that it was a representative meeting?—Thoroughly. I may say it was one of the largest gatherings in connection with a special subject that we have ever had.

1667. From your experience you are fully convinced of the necessity of legislative action?—It is the only possible way of making any such alteration become general.

1668. And, speaking as a manufacturer, you are equally convinced of the advantages that would accrue to your workmen if a Bill of this sort were to pass?—I think really this is a workmen's Bill, and that for workers this is most necessary.

1669. The next most important point is the methods by which effect could be given to this Bill. Have you considered the gradual alteration of time as foreshadowed in the Bill, or whether any alternative suggestion would be more practicable?—Well, that is a difficult point, Sir, and I was in doubt whether it would not be better to make one alteration rather than three or four, but, after having thoroughly considered it, I am inclined to believe that a gradual alteration would be better than one sudden alteration.

1670. Do the alterations recommended in the Bill commend themselves to your judgment?—Well, I think they are reasonable. It might be questioned whether some regulation as to a standard of a quarter of an hour, or a half-hour might not be better; but I think a gradual one is better than a sudden alteration.

1671. Was that matter at all discussed at this meeting of the Chamber of Commerce?—The question was raised whether it would not be possible to adopt Mid-European time, the one hour all the year round, but it was very quickly abandoned.

Chairman—continued.

abandoned. It was thought that the remedy, in the winter months particularly, would be worse than the disease, and it was not persisted in at all; it was held to be very undesirable.

1672. Was the further point discussed as to a six-monthly or five-monthly adoption of Mid-European time?—No; Sir, that was not discussed at all.

1673. And the impression left upon your mind distinctly was, I gather, that your Chamber of Commerce altogether approves both of the Bill and the provisions of it?—I may say, Sir, that I was surprised at the unanimity and the enthusiasm with which the proposal was received.

Mr. *Holt.*

1674. You told us that in your manufactory you altered the hours from eight o'clock to 7.30?—It was so; yes.

1675. Now what are your hours?—Half-past seven until six.

1676. 7.30 to six?—Yes, and from half-past seven to one on Saturdays.

1677. Yours is a manufacturing concern?—Manufacturing—confectionery and preserves.

1678. That is carried on all the year round?—All the year round.

1679. What is there to prevent an arrangement with your workpeople, if they like and you like, during the summer months, to alter your hours from what they are now to 6.30 to five?—That would be most inconvenient and undesirable, in this way: The Factory Acts are very stringent as a rule, and rightly so. We and the textile factories employ a very considerable amount of women labour, and we are compelled to observe stated intervals for meals. We cannot employ any body of women or young persons for more than five hours at a stretch without giving them one hour for meal time, and if we began at six or half-past six that would bring our meal time to half-past 11, which would interefere with all other routine business, and would be most inconvenient, and, in fact, unworkable.

1680. What time is the meal-time now?—Half-past 12. That is quite early enough.

1681. Your workpeople apparently think that the Bill would be a good plan of effecting a change?—They do.

1682. Sir George Livesey's workpeople think that it would not?—Quite so.

1683. The first suggestion that strikes one is that the reason of this difference of opinion is that your workpeople begin at 7.30 and his at six?—With all due respect to Sir George Livesey, Sir, I think the real reason is that the Bill has not been fully explained.

1684. Is it not possible that people who work from 7.30 to six may think it a very good thing to have their work hours made an hour earlier than that, whereas people who work from six to five do not see the advantage of it?—That is quite possible; I quite accept that interpretation. There is no doubt something in that, I admit.

1685. That is a reasonable explanation?—That is quite a possible one.

1686. Do you think the question of whether it is better to have an early hour made earlier would be affected by the wish of the people themselves?—I quite see that argument; that is reasonable.

Mr. *Holt*—continued.

1687. It might be desirable for some, and not equally desirable for others?—Quite so.

1688. You think an alteration of bank hours would not have the desired effect?—From the commercial point of view of making it general such an idea is grotesque to my mind.

1689. It would affect bankers?—It might bankers, but not the general public.

1690. Not manufacturers?—Not manufacturers. The only persons it would affect, I think, are the bankers and their staff, and those closely connected with the Stock Exchange, or with banking business.

1691. Is it not a fact that banking hours largely rule the holidays and working hours of ordinary days?—I should entirely differ from that view. It is an old-fashioned idea, perhaps, but to my mind, as a fact, it is non-existent.

1692. From my experience I should have thought it was so?—My experience is that, whatever the banks choose to do, the manufacturers and traders of the country will not pay the smallest attention to it, but will go their own way.

1693. Certainly, from what you have said, the Saturday half-holiday has got much more general since the banks started closing earlier on Saturday?—It might possibly be that; but these holidays have been largely influenced by one distinguished man who has been a witness here, Lord Avebury.

1694. That is Bank Holidays?—Bank Holidays and the earlier hours generally.

1695. You think it is impossible for individual people to adopt earlier hours?—I should say it is not impossible, but it is absolutely impossible to expect that it will be done. It never will be done except by Act of Parliament; that I am firmly convinced of.

1696. By an Act of Parliament that must deal not with the hours of work only, but must alter the clock so to speak?—Well, to give some standard settled policy, which will practically make a thing of this kind universal without making any great disturbance.

1697. You see, unless people agree to work the same nominal hours after you have passed this Act, unless it is made a direction, it will produce no result whatever?—Making the day the same length for everybody?

1698. No. Take your own case; assume that a man works from 7.30 to six?—Yes.

1699. Unless all would work from 7.30 to six, this Bill would produce no result if it became an Act of Parliament?—That is so, practically.

1700. Suppose you say: "They have passed this silly Act, but no one need take any notice of it"; it would be of no effect?—Yes, that is so.

1701. You think it would be unworkable?—It could very easily be avoided.

1702. We know that really the whole thing depends upon a general consensus of opinion that it is better to adopt it?—Whether it should be made really operative or not?

1703. Yes?—Quite so. This Act is not intended to be compulsory.

1704. It is not compulsory?—Oh, no.

1705. Therefore

Mr. *Holt*—continued.

1705. Therefore the thing naturally occurs to me, and I think it would to other people, that if the whole thing depends upon a voluntary consensus of opinion, is it necessary to have such an Act at all?—That I think is very clearly explained, because the basis of it is that people desire (as I have pointed out to you) to work an hour earlier in the morning and leave off an hour earlier at night. We could not do that at present, owing to the irregularity and the inconvenient hours at which we should be compelled to take our breakfast.

1706. You are practically under the Factory Act?—Not entirely. That is one objection. Then the railway carriers call at our factory at certain times for goods. We have railway vans calling at our works every day, and they would be calling when we were closing; their trains would go at the usual stated times, and we could not carry on our business, which would mean that we should be compelled to keep our works open half an hour or an hour extra in the evening, unless the railway companies would alter their times.

Chairman.

1707. And the Post Office?—And the Post Office, and everything. I wish to say one word in connection with an argument I saw advanced, namely, that if this Act came into force it would, or it might, be made the means of prolonging the working hours of a working day by certain manufacturers. I think that is quite impossible. I think labour is now so highly organised that it would resist any such attempt, and that public opinion would support it. I do not think that is in any way possible.

1708. Then that is an objection that has no weight, according to your idea, at all?—No, not the smallest.

Mr. *Holt.*

1709. It must be obvious that, if we were going to get all the advantages anticipated from this Bill, the working hours of a good many people will have to be prolonged?—I do not see why it should be so.

1710. First of all, obviously, the train service during the day will have to be carried on for a longer period?—I am afraid I do not follow you.

1711. If you will allow me to say so, one of the advantages claimed for this measure is this: take your own workmen, they are going to stop work at five o'clock instead of at six?—But it will be six o'clock by the clock, the recognised time.

1712. I want to avoid confusion. Let us talk about present time only?—Yes.

1713. They are going to stop at five o'clock; they now stop at six o'clock by the clock; they would then stop at five by the present time?—Quite so.

1714. In that event, the advantage of that is that they are going to get a much longer evening?—Yes.

1715. They are going to be, up to eight o'clock in the evening, out in the open air?—Yes.

Mr. *Holt*—continued.

1716. It must mean that, if they stopped their recreation, they would have abundant time to do all these things which they would not have done in an hour less; they would be coming home and doing a great many things at eight o'clock that they would not otherwise be doing. The trains must go on and run as usual?—I do not see that at all. Those having recreation and stopping at eight o'clock will then stop at nine o'clock, or they will get a train at 10 o'clock instead of at nine o'clock. I do not see any objection at all.

1717. I do not say that there is any objection, but a suggestion has been made that people would go into the country who otherwise would not have gone?—Quite so.

1718. That means a considerable amount of work for other people?—In what way.

1719. As regards the people who work the service?—I do not think so.

1720. It must be so?—I should have thought that the whole tendency of modern-day legislation and social surroundings was to induce people to take more recreation and go further into the country to enjoy themselves.

1721. The effect of this Bill must be, if it is going to be a success, to make the actual number of hours used in a day greater, and the number of hours spent in bed less?—I cannot agree to that. I cannot accept that argument, I am afraid, at all.

1722. Do not you think this argument really means that you are going to make use of a certain amount of time which is now spent in business, that is now going to be used for recreation, and you are going to make that up in business by taking something out of the time spent in bed?—We may put it in another way: valuable time spent in bed will be used for work; people who appreciate the daylight may go to bed earlier and spend the dark in bed instead of the light.

1723. You think they will go?—I do not think they will go to bed the whole hour and 20 minutes earlier, but they will go earlier in the evening. The last train now that is run at 12 o'clock will run an hour later by the clock, just as they are doing now.

1724. You do not think they will go by another train?—I do not suggest that they will put another train on.

1725. You do not?—No, not for a moment.

1726. Representatives of the railway companies have told us that, with regard to pleasure-seeking districts, they would have to do so?—They might, instead of bringing people back between nine and 10 o'clock at night, put on another later train. That is a question for them to decide.

1727. You do think that people will not go to bed the whole hour earlier?—Possibly not the whole hour, possibly the greater portion of it.

1728. Three-quarters of an hour?—I should say, if you put it an hour and 20 minutes, three-quarters of an hour would be about the time, that is my impression.

Chairman.

1729. Do not you think that, if extra work were really entailed in certain departments of national industry, it would be possible to have other shifts of

Chairman—continued.

of workmen?—That, Sir, would clearly adjust itself. Either these people would get extra remuneration, or, as I suggest, there would be double shifts to work, clearly.

1730. And the disadvantage or the objection Mr. Holt refers to would be entirely obviated?—I think so. I am sorry to say I cannot follow Mr. Holt's objection.

Mr. *Pearce.*

1731. Supposing the hour change were adopted, when in your opinion should the change be made?—Well, as early as possible, but that is one of the objections to having the alteration made in one lump.

1732. Have you considered anything like a date?—I cannot say I have altogether. I should say that if it came at all it should come before the end of April; that is the hour altogether.

Mr. *Pearce*—continued.

1733. Not much before the end of April, you think?—No.

1734. When do you think, if that change was made, we should revert to it back?—I should say the middle of September; about the middle of September.

1735. You recognise twilight?—I should think twilight then is waning.

1736. The day is very short then, and so it is in April; that is quite true?—September, as you know, is often a lovely month, and I think the middle of September would be a useful time.

1737. The heat of the day rather trends towards the afternoon than earlier?—Yes, it does.

1738. That is a feature in the matter.—Yes.

(*The Witness withdrew.*)

Mr. EDWARD SATTERTHWAITE called in; and Examined.

Chairman.

1739. You are on the Committee of the London Stock Exchange?—I am the Secretary of the Committee of the Stock Exchange.

1740. And you have been deputed by the committee to come to give evidence to-day?—No, Sir, I have not. My Chairman yesterday received an urgent request for us to send someone here to-day at 11.30. But the matter has not been discussed by the committee. Any opinion I could give to-day would only be my own personal opinion.

1741. Do they contemplate considering it?—I do not think the matter has been raised before them. They are perfectly willing, Sir, to write a memorandum, as the Chairman said in his letter to your clerk, if you wish it.

1742. Well, of course, it would be a very great benefit to this Committee, because one of the principal objections which has been brought to this Bill is that it would very considerably affect the transactions that take place between this country and western countries; America notably?—Undoubtedly it would.

1743. That it would curtail the hours that are now available for the carrying out of those transactions?—Undoubtedly it would, most seriously. I can answer that without any memorandum, but if you would like the memorandum written, Sir, and if your clerk will kindly indicate the particular points on which you wish the opinion of the committee, I think I can guarantee that it shall be written for you.

1744. I think the Committee would like very much to have a reasoned opinion from the Committee of the London Stock Exchange as regards the general effect and possible tendency of this Bill, if it were passed into law; how it would affect Stock Exchange operations generally, and particularly in regard to transactions with the western hemisphere and the eastern hemisphere?—Yes, Sir, I think I can undertake to get that done.

1745. And, further, as regards the methods proposed to be adopted to carry out the provisions of the Bill. You may have heard that some

Chairman—continued.

objections have been raised to the partial alteration of time extending over four weeks of the year in the month of April?—Yes.

1746. Other suggestions have been made that an hour, equal to Mid-European time, might be put on for certain portions of the year, the summer months of the year; on these points the considered view of the Stock Exchange would be very much appreciated by this Select Committee.

Mr. *Pearce.*

1747. I agree. I think it might be convenient that this witness should visit us again with that reasoned opinion; it would be better than taking his evidence now.

Mr. *Pirie.*

1748. And also as to what steps, perhaps, the Stock Exchange would take to adjust itself to the new conditions, especially of the western markets, on the assumption that the Bill became law?—I do not think that would depend upon us very much; it would depend upon the western markets.

1749. Upon the various houses—especially the American, I think?—Yes. You see at present the New York Stock Exchange opening at 10 o'clock, and the London Stock Exchange closing at four; there is one hour during which both markets are open at the same time. As I understand the effect of the Bill (which I only read yesterday), it would for five months in the year, or rather more, bring about a position of affairs by which the two markets would be never open at the same time. I do not think that any adjustment of our hours in London would affect that position. It would have to be some adjustment of the hours in the United States and in Canada.

Mr. *Holt.*

1750. The Stock Exchange in London might keep open till five o'clock?—Then will the Post Office take their letters later? You see the close of the Stock Exchange is practically regulated, or to a large extent regulated, by the time at which

Mr. *Holt*—continued.

which country letters can be posted. It is no use keeping open till five if letters and contracts cannot catch the country post.

Mr. *Pearce.*

1751. Do you think you could give us information, not now, but in your report, as to the comparative volume of Stock Exchange transactions between America and Great Britain, as compared with the total Stock Exchange business ?—I think that would be very difficult, Sir, because all business is not recorded, but I can tell you that it is a very large proportion of the active business.

1752. And increasing ?—It increases and decreases from time to time.

1753. But I mean the general tendency of telegraphic business must be to increase ?—The general tendency over a series of years must be to increase.

Mr. *Holt.*

1754. Have you got a direct cable from your Stock Exchange in London right into the New York Stock Exchange ?—Well, it is as near as possible that.

1755. Perhaps when you come back you could show us a statement of the number of telegrams normally exchanged between London and New York in that hour. It would be very useful to us if you could ?—I think you would have to get that from the cable companies.

Mr. *Holt*—continued.

1756. You have not any means of providing it ?—No, I have not. You would have to get that from the Anglo-American and the Commercial Cable Companies.

Mr. *Pirie.*

1757. We may take it that you personally are against the Bill ?—Oh, certainly.

1758. That is your personal view ?—That is my personal view, and I cannot bind anybody else.

1759. Is your personal view arrived at entirely from your business relations, or is it from the consideration of the public weal ?—From a business point of view, Sir.

1760. Have you looked at the Bill at all from the point of view of public good ?—Oh no, Sir, not at all. I only saw the Bill yesterday. I have not heard it talked about at all in the City.

Mr. *Holt.*

1761. I understand that you came here to give the views of the Stock Exchange on the Bill, not the views of the public ?—I really only came to give my own views.

Chairman.

1762. Will you kindly let us know when you can favour the Committee with your official evidence ?—Yes.

(*The Witness withdrew.*)

Mr. JOSEPH JOHN CROSFIELD, J.P., called in; and Examined.

Chairman.

1763. What is your occupation ?—I am Deputy Chairman and a Managing Director of Joseph Crosfield & Sons, Limited, soap and chemical manufacturers, at Warrington.

1764. You come here to give evidence with regard to Mr. Willett's Bill ?—Yes, which I support on behalf of my company, and on my own behalf, most strongly.

1765. Will you kindly briefly develop your arguments ?—I think I cannot do better than give you the experience of our office staff. My company employs about 1,500 hands, and we have an office staff of about 100 clerks, besides typists and managers. In 1901 our office hours were the same as in the district, that was nine to six, and an hour for lunch, but in order to improve the position of our clerks and their health, we shortened the hours by half an hour, closing at 5.30, and gave them every second Thursday a half holiday, provided their work was done. In June, 1904, we asked them if in the summer months they would like to come half an hour earlier and close half an hour earlier, in order that they might have as much daylight as possible in the summer months. This alteration in working hours was tried, and it was so much appreciated by the staff that when October the first came, when we had originally intended to go back to the later hours, they asked us to make it permanent. Now the result of these alterations has been that our staff has an hour more daylight

Chairman—continued.

in summer than it had before, and I cannot too strongly emphasise the benefit to the health of the staff and the improvement in the work done for the company which has been the result. The business of the company has increased year by year for many years past, and our office staff has remained practically stationary, and I attribute that largely to the better health of the clerks, and the fact that they can do more work for the company in the same time.

1766. Then do we understand that the change has been made permanent in your establishment ?—It has, yes.

1767. How does it work during the winter months ?—The hours are the same during the winter months; we do not change. A further alteration which we should like to make at present, and which is desired by our staff, is that we should open another half-hour earlier (that is open at 8 o'clock), and close at 4.30.

1768. Eight o'clock, Greenwich time ?—Yes, but unfortunately that is not possible. There are many hindrances to that; train services are not convenient for those who live outside the town, postal arrangements affect matters, clerks who live at home have their regular dinner hour, and if we opened our office a half-hour earlier than we do, it would naturally make too long an interval between the clerk's breakfast and his lunch. Then there is another thing, we cannot close our office an hour or an hour and a half before other people close

Chairman—continued.

close without serious inconvenience. We have been able to make the changes indicated without much inconvenience to ourselves. As soon as our clients got to know what we had done, they remembered it, and it has not made much trouble. With regard to our works, our hours there are from eight to 5.30 for our girls, and 7.30 to 5.30 for our men, and there again the trouble comes in of the dinner hour, in altering those hours. We insist upon our girls and men having their breakfast before they come to our works; the girls work from eight to 12.30 and the men from 7.30 to 12. If we tried to open our works in summer an hour or two hours earlier than we do at present, the men and girls could not go on such a long time without the dinner hour being altered. In other words, if we opened at six they would have to have their dinner at 10, and as other works might not do the same, it would upset all the workman's arrangements in his own home. That precludes us from doing anything there. We have also, in connection with our works, a recreation club, where our employees go after working hours, and I am told by the managers, who are responsible, that the change proposed in this Bill would be immensely appreciated by our employees because of the extra time that it would give them for recreation in daylight after their work hours.

1769. Did you hear Sir George Livesey's evidence just now?—Yes, I can only say that I entirely disagree with it.

Chairman—continued.

1770. Is there not something to be said for his view, for instance, that, as his men start work at six o'clock in the morning, any putting on of the clock, and working earlier than that hour, would be objectionable from the point of view of the workman. Suppose you had workmen who wanted to come in at six, and the new proposal was to come at five, might they not conceivably very strongly object to that?—Possibly they might, and possibly conditions in London here are different to the conditions with us. Our town is comparatively small, and our workpeople can get out into the country very quickly; they like to start as early as they can and finish as early as they can.

1771. What have you to say as regards the mode of bringing about the change?—Well one's first impression would be that one change only would be best, but, on considering the matter over, I rather think the suggestions of the Bill are the best. In our works we have "shift" work, that is day and night work. Where you have three shifts of eight hours each, you can understand that it is much better to alter those shifts 20 minutes at a time, than to have, perhaps, a change of an hour and 20 minutes at once.

(*The Witness withdrew.*)

Mr. ERNEST C. GRINDLEY called in; and Examined.

Chairman.

1772. You are the Chief Clerk to the Superintendent of the London and North Western Railway, and Chairman of the Executive Council of the London and North Western Railway Temperance Union?—Yes.

1773. How many men does that Union number?—17,531.

1774. And you are also Chairman of the London and North Western Athletic Club?—Yes, the "London" only, Sir.

1775. The London part of the athletic club of the London and North Western Railway?—Yes.

1776. Which numbers how many?—About 800.

1777. Have you carefully thought out the proposal of this Bill and the effect it would have more particularly upon the economy and the comfort and the general hours of working of the railway men?—I have, Sir.

1778. You have; and what is the conclusion at which you have arrived?—When you speak of "comfort," Sir, what do you mean?

1779. Develop your views as to the Bill generally; give your main evidence, say what you think of it?—I think that if the men were able to get home earlier they would have very much greater opportunities for engaging in athletics, or anything of that kind, than they have at the present time. Speaking from the athletic point of view, we have a number of teams who engage in what we call "inter-office" competitions. These matches take place in the evening, and last

Chairman—continued.

night I was on our ground when some of these teams came down to play; they were only able to begin about half-past six, consequently they could only play until about a quarter to eight; even then the light would not be good, and they have to play very hard and very fast to get anything like an innings each.

1780. Do you say that is the average time at which the majority of the workmen leave off work in London—half-past six?—Well, you see, they have to get from their work down to their ground.

1781. How long does that take them on an average?—I should think perhaps half an hour to three-quarters of an hour.

1782. Should you think it would be a great boon to all those who are engaged in sports—athletics—to have some sort of an adjustment of the time-table?—A very great boon, indeed, Sir.

1783. Have you any men who practice musketry firing?—Yes.

1784. And do you find that the present hours of leaving off work entail considerable inconvenience as regards the carrying out of that part of their patriotic duties?—It does, of course, cause inconvenience, although the company are kind enough to give them facilities for shooting in what we might call office hours.

1785. What is your opinion as regards the methods of carrying out the provisions of this Bill?—I think the small instalment would be best.

Chairman—continued.

1786. You prefer the small instalment to an entire alteration for six months of the year?—I think so.

1787. That is your fully considered view, is it?—I think so; yes.

1788. Have you considered the matter along with any of your representative men, or is it your personal view that you are expressing?—My views are held by quite a number of our men. I sent Mr. Willett's circular or pamphlet to each of our district secretaries in connection with our Temperance Union, who in turn sent it round to our branches, and, although we have not taken a census of the opinion, in a great many cases the secretaries have replied saying that the men are quite in favour, a large majority of the men.

1789. What is your opinion as to the effect of the Bill on the promotion of temperance. Do you think it would bring about a voluntary earlier closing of public-houses generally?—I do not think the men would want to go into public-houses at all.

1790. You could not tell the Committee, perhaps, as to whether it would bring about an earlier closing of clubs, about which so much has been made in the recent licensing discussion?—No, I have no information on that point.

1791. You have no evidence to give upon that point?—No, Sir.

1792. All you say as regards the temperance aspect of this question is that the mere fact of the men being given opportunities for healthy and rational exercise is that they will not want to go to public-houses?—I think so; strongly.

1793. But you cannot say whether it would bring about an earlier closing of public-houses on a voluntary basis?—No, I cannot.

1794. You cannot speak to that?—No.

Mr. *Pearce.*

1795. You have in mind that the public-houses are closed by law at a definite hour?—Yes.

1796. And that, if that hour were shifted, the public-houses would have to close by law at the shifted time?—Yes, I appreciate that.

1797. You follow that?—Yes.

1798. So that, so far as the natural light is concerned, or natural twilight, they would be shut up an hour earlier than they are now, or thereabouts?—That is so.

1799. Are the facilities your company gives for shooting given in the summer time?—All the year round.

1800. And how much time do they give to their men?—There is no actual fixed time. If

Mr. *Pearce*—continued.

there are any matches to be "fired," the men would just go down and shoot their rounds and go back to their work.

1801. Without objection?—Without objection.

1802. Then the giving of those facilities shows that, if they could have more time allotted them by an arrangement of their work in the summer, there would be no occasion for special facilities?—I think there would not be, and, of course, there would probably be more matches, because they would arrange "inter-station" matches, or things of that kind.

Mr. *Holt.*

1803. What sort of men belong to the Temperance Union?—All grades, Sir, from the general manager downwards.

1804. It includes porters?—Oh, yes.

1805. Not merely clerks?—Oh, no; signalmen, porters and everyone.

1806. Do you happen to know what are the usual hours that these men keep? I suppose they come on duty at very different times?—Yes; I cannot give you any information as to that.

1807. For instance, these men who play in the cricket matches in the summer begin at half-past six?—I was speaking of clerks then.

1808. What time do these men go to bed?—What time they go to bed now I cannot say.

1809. You do not know what their habits are as regards that?—I should think they go to bed fairly reasonably early.

1810. To what hour do they work?—They work, perhaps, to about half-past five.

1811. When do they begin?—Nine o'clock; but the work varies in different departments.

1812. I suppose so; in fact, you have no regular hours?—We have no regular hours.

Chairman.

1813. Still, you think you can speak for the generality of your men as to the decided advantage which would accrue to the working classes of the community by the adoption of the provisions of this Bill?—I am sure they would be very glad to see it, Sir.

1814. More especially with reference to those men who do not leave off work until about seven o'clock in the evening?—Yes.

1815. And who consequently do not know what it is to have the pleasure of sunlight recreation?—That is so.

(*The Witness withdrew.*)

Mr. SAM FAY called in; and Examined.

Chairman.

1816. You are the representative of the Great Central Railway Company?—I am the General Manager of the Great Central Railway Company.

1817. And do you come here with the sanction of your Board?—No, I am not representing the Board, but the Chairman of the Company, Sir Alexander Henderson, is, I know, in favour of the scheme.

Chairman—continued.

1818. You perhaps do not know whether the question has been considered in its entirety by the Board?—It has not. It has been considered by each of the departmental offices—the engineers, the mechanical engineers, the road engineers, and the other officers.

1819. Does the Bill commend itself to your opinion as generally being in favour of the public good?

Chairman—continued.

good ?—I am in favour of an alteration of the hours of the clock, but not quite in the way suggested by Mr. Willett.

1820. Will you tell the Committee in what way you desire to see the alteration made ?—I would prefer an alteration of one hour in April, and to see it altered back again in September, say the third week in April and the third week in September, but I would rather have the 20 minutes than nothing at all. I think if there is to be any disadvantage in the alteration it will be at the time of the alteration; and if you alter eight times a year, you will get eight times the amount of disadvantage (if there be any) that you would by an alteration of twice a year only.

1821. I do not know whether you heard or read the evidence given here by the representative of the London and North Western Railway. He seemed to be of a contrary view to you, he thought he would prefer a gradual alteration. I think I am correct in saying that ?—Yes.

1822. He preferred a gradual alteration to a wholesale one ?—Yes, I saw that, but I do not think the position of the London and North Western Railway is quite the same as that of some of the other companies. I think some of those companies who have a Continental service and Continental connections would he in such circumstances that they would find some inconvenience that does not apply to the London and North Western Railway, and that is where I see any difficulty that is likely to arise; that is to say, in connection with Continental services.

1823. And do you think it is a scheme which would save your company a good deal in the way of artificial illuminants ?—No doubt it would, but that is not the point so much, I think, as the advantage there would be in conducting the far greater proportion of dangerous work on railways in daylight. We find that in the winter time we get far more, a great many more, accidents than we do in the summer, and at night we know there are more accidents; one would naturally expect it to be so. If we drive into daylight the formation of our goods trains, the shunting and so on, that goes on in the night after the traffic has been brought to the various stations throughout the country during the day, if we could perform those operations in daylight it would, I am sure, be a very great advantage all the way round. The work would be done quicker, and there would be less liability to accidents.

1824. It has been suggested that, owing to the greater activity to the general life of the country which the provisions of this Bill would give, it might lead to the prolongation of hours that are worked at present by the railway people. Have you anything to say to that ?—I am certain it would not happen. We are under continuous pressure from the Board of Trade, and from the men, to reduce the hours; and I am certain that if anybody attempted to increase them, well, I know what would happen, I know it could not occur.

1825. So that in certain exceptional emergencies, if longer hours of work had to be put in, you would have to employ other shifts of workmen in consequence ?—Well, the only way in which I can see that there would be more employment on railways would be by the fact that possibly there might be more trains run in the evening, say between 9 and 10 by the then clock; and it might be that the trains now running between those hours would be an hour earlier. The trains between seven and eight would be also required. It might be there would be more trains between 9 and 10, and that identically the same number of trains would have to be run between seven and eight. If that happened, and there were more trains required, we would have to employ more men, but there would be no prolongation of the hours of the Company's men.

1826. From your experience, do you consider the difficulties connected with Continental traffic at all insuperable to those who have to conduct the traffic ?—I think that an hour would involve very little difficulty in the arrangement of the time-tables; I think that could be got over. There is no particular difficulty about that; but if you altered it four times in the month I think there might be a little inconvenience to the public, because it would be so difficult to show on the time-tables exactly what was happening. A time-table, to some people, even now, is not a very lucid matter, I am afraid. If you have four changes made in a month, you would get a good deal of difficulty.

1827. Do you consider that the Bill would give railway workmen greater opportunities of recreation and mental and physical exercise than is the case at present ?—Undoubtedly; I think it would conduce to the health of the staff, and would reduce the liability which is felt now, more particularly in the winter months, by the various societies which railway companies have, provident societies, sick funds, and those sort of things. We find in the winter a good deal more sickness than in the summer, not altogether brought about by darkness, of course.

1828. Generally speaking, you think the public would "tumble" to the change just as easily as they do when they travel across the Continent or to America, where there are three different changes of time ?—Yes; four in some instances; I found four in Canada. I may say it seemed to me quite a natural thing to get accustomed to the change of an hour.

Mr. *Holt.*

1829. I suppose the railway companies are looking to the increased traffic as one of the advantages of this alteration ?—I do not think there would be a very great deal of traffic; it might conduce to more suburban traffic, perhaps.

1830. We are told that one of the great advantages would be that people would go further afield, and play more cricket and more golf, and get similar amusement; and that necessarily means more suburban traffic ?—It might; I do not think it necessarily follows. It depends on where the golf course and the cricket club is.

1831. Most of these courses—golf courses and so on—are round about big towns, some little way out of town, and it is one of the advantages that people would go into the country who cannot otherwise get there; and that must mean an

Mr. *Holt*—continued.

increase of traffic to the railway companies?—Well, it may mean an increase of traffic; but it is more likely to be an increase to the tram traffic. I am afraid we have lost most of our suburban traffic.

1832. The people would get more tramcars?—It would mean more tramcars, I dare say.

1833. If this took place it would have the effect of neutralising danger by your being able to do more of the dangerous work in daylight?—I should think so.

1834. And the difficulty, I suppose, is because at present you cannot get goods from your customers early?—You see, if warehouses are open up to a certain time, you have to collect up to a certain time; you cannot get those goods into your warehouses and station yards before a certain time.

1835. It has nothing to do, I think, with the line; it is not waiting until the line is more clear?—No, it is getting up the traffic from the public. If we can get it an hour earlier, we can perform our shunting operations earlier.

1836. With regard to suburban traffic, if it was an hour later, how would that affect your staff?—We should have to employ more men if we had to run the same number of trains between seven and eight as are now running between eight and nine. If we should have to run more trains between eight and nine, it means the employment of more staff.

1837. Supposing you run more trains between eight and nine, and there would be a reduction of trains between four and five o'clock, would that mean more staff?—I do not think it is likely to occur. The only possibility I see is that people would remain in the country longer, and we might possibly have to run the trains we are running now, and also a train an hour later.

1838. I asked the London and North Western Railway representative about the train at Windermere which would be spoilt under this arrangement. If after the Bill passed, it ran as at the present moment of time, it would be practically useless, and the people would not get their day in the country. He at once said: "I shall put on another train an hour later, and we should very likely knock out the 4 o'clock trains in the afternoon." Would that be likely to occur down in the country?—It is very possible.

1839. What would be the effect on the railway service if you added more trains?—If we had to run more trains, we should have to employ more men.

1840. That would not be general?—Of course I imagine that the London and North Western Railway, or any other railway company, would not knock off that train until they had had some experience as to whether the traffic had actually altered very much in that particular hour.

1841. Supposing traffic carried on in this way: that you had the same number of trains in the day to begin with, running at the same nominal time as they do now, but going on an hour later, and that reduced the service in the middle of the day, what would the effect of that be on the staff?—It would not affect their hours.

1842. Would it not compel them to go on an hour longer?—No, the hours of the men are fixed practically by agreement with the men, either eight, 10 or 12 hours, and you could not make them more than that.

1843. Supposing you had a slack time in the middle of the day, and a busy time later, what then?—We have got it now.

1844. Suppose that is accentuated?—I do not think that it would make any difference to the hours of the men any way. It might involve the employment of more men. That is possible.

1845. Consequently it would be a bad look-out for the railway company if they got the same total receipts only in the summer?—I am sure the saving of artificial light would counterbalance anything of that sort.

(*The Witness withdrew.*)

Mr. Alexander M. Nicol called in; and Examined.

Chairman.

1846. You are an officer of the Salvation Army of 27 years' standing, you have charge of its literature, and you are actively associated with the social and spiritual operations of the Army, and at one time you were in direct charge of its work in London for a period of three years, is that so?—Yes.

1847. Have you travelled about a good deal?—Yes, during that time I have travelled a good deal, twice or three times round the world.

1848. Have you travelled about with General Booth?—Yes, sometimes.

1849. What have you got to say in regard to this Bill which we are now considering?—We view it (I am speaking now of the representatives and leaders of the Army) as a measure calculated to bring about certain very useful results; for instance, we recognise the value of daylight as a physical benefit to the community, and especially to the denizens of alleys (as in Scotland), closes, courts, and so forth. We think that, with the facility that this Bill will ensure, these people will enjoy more daylight and that it will be a decided advantage to the morality, the health and the spirits of these people. We further think that the tendency of the Bill is to encourage the habit of early rising, and it will certainly add to the number of those who will avail themselves of the increasing facilities arising from outdoor exercises. Take, for example, the increasing number of "rambling" clubs on Saturday afternoons and evenings and on the half-holidays. The advantage of the extra hour's daylight will be immense, especially amongst people who work a little later than others, and we further think, speaking from our own side of things, that the measure will be advantageous to technical education. There is a large number of

Chairman—continued.

of young men and women who are anxious to avail themselves of evening classes.

1850. Continuation schools?—Continuation schools and technical schools. That is another feature of the Bill that commends itself to us, and further, as it will affect the work of the organisation with which I am identified, it will be of immense service. We have, for instance, about 2,000 to 2,500 musicians in London alone, all over the country 18,000 to 20,000, and if this Bill came into operation it would enable them to carry on their practices in daylight, and spend a larger amount of time in the daylight in the evangelistic work in the streets, and of course it would have an appreciable effect in money; we should save gas light and it would help us generally, I think, in those directions.

1851. Have you taken any opportunity of consulting your most trusted coadjutors with regard to this Bill?—Yes, I have brought the matter before General Booth, also the chief of the staff, who is in more direct touch with the leaders of the movement in England, also on the Continent, and I have personally made some effort to ascertain their views, and I have found there is a very remarkable concensus of opinion in favour of the Bill, and as they are in touch with the classes to whom I have referred, I think you may take it that the Salvation Army would view this change as valuable altogether.

1852. Do you propose to take any sort of plebiscite of your principal workers?—If there was a division of opinion we should certainly, for the advantage of securing an accurate judgment, do so; but I do not think it is necessary, seeing that our representatives (officers), both here and on the Continent, think it is a desirable change.

1853. What sort of people are they who help you in your Salvation Army work? What I want to know is whether they are workers of different categories. I take it they are of different occupations, men whose hours of leaving off work vary very considerably?—Yes.

1854. Can you give the Committee any idea as to the different categories?—I think a safe and accurate answer to that question, Sir, would be that they belong to the various grades of the working classes We have a very small proportion of the professional and clerical, and certainly very few of the leisured, classes. I think you may safely conclude that our workers and congregations are recruited from the working and the poorer classes.

1855. Now we come to the question of the mode of procedure; have you considered that?—Yes; we have looked at that. We are inclined to think that the method proposed by Mr. Willett is on the whole the most likely to be acceptable. We think that the English people are more conservative than radical—that four bites of a cherry are better in this case than one of "altogether," we think that that is a very workable method, perhaps the best that could be devised.

1856. You do not think that the fact of four changes in April and four changes again in September would rather set people's backs against the Bill?—I do not think so; I think there would be a prejudice, rather; the prejudice would be strong against one change. I think so, and I think that the discomfort arising from one change would be more pronounced than the discomfort arising from four changes.

Chairman—continued.

Mr. *Holt.*

1857. You have discussed this question with your friends abroad?—Yes, on the Continent only.

1858. Have you ever asked them at all what they think of the probabilities of the Continental nations doing the same thing?—Yes, I have. To put it in another form, I would put it in this way: I have asked the question: How do you view the change? and they answered that question rather on principle, on the line that any method that enables the worker to enjoy more daylight is an advantage, and they would hail a similar arrangement if it was carried on in Holland and also in Germany.

1859. Were these gentlemen, who gave this opinion in Holland, Dutchmen or Englishmen?—They were purely natives—Dutchmen.

1860. Then it may be that, if this was done here, what they would be inclined to do would be to get up an agitation in their own country to do the same thing?—I have no doubt of it. In a large portion of Holland, as you know, they have adopted Greenwich time, and therefore I think the influence of our people would be all on the side of adopting the change there. I think so.

Chairman.

1861. I want to ask you another question. How would you view a reform of, say, an increase of a quarter of an hour a year for five years, making the alterations still more gradually than the alterations suggested by the Bill?—I think it is a little too gradual.

1862. And once the community have got accustomed to the new order of things, then to revert to Greenwich time?—I am afraid that is just a little too slow, Sir.

1863. You think it is too fantastic a proposition?—Yes.

1864. Have you anything to say about Japan? There is something in your *précis* about that?—Nothing further, I think. The usual experience one has in travelling from East to West, or *vice versa*, is that the change effected from day to day is not noticeable.

1865. You mean to say that you have noticed the ease and facility of going from one time to another during your travel across the Continent?—Yes, and more especially in America; it is very noticeable there.

(*The Witness withdrew.*)

Mr. JOHN JOSEPH BEXFIELD CAMPLING, called in; and Examined.

Chairman.

1866. You are Secretary and Manager to Morel Brothers, Cobbett & Son, Limited, of 210, Piccadilly?—Yes. I have been engaged in that firm for the past 20 years, and, as an employer of labour of the shop and warehouse class, I have had opportunities to study the different characters engaged in those occupations. In my early career I took considerable interest also in games and athletic sports, being captain of a well-known bicycle club, and have served six years in the Norfolk and Norwich Rifle Volunteers, and later on as a trooper of the Middlesex Yeomanry.

1867. How many men does your firm employ?—Between 50 and 60 men. They are of a class, of course, which are very numerous in this country, viz., the working and middle classes. I find the best business men are those who are country bred, or whose childhood has been spent in the outside suburbs or country. A lad who is fond of sports, athletics, gardening, or has a hobby connected with out-of-door occupation makes the best clerk or warehouseman. I have started lads who have been strongly recommended to me by masters of London School Boards, but they have not proved so successful as a boy who comes from the suburbs or the country. If, therefore, this Bill has the effect of sending the working classes to live in the suburbs (which I think it will) it will prove a benefit to the nation. The men in the employment of my company mostly leave their homes at about 7 a.m., and return about 8 p.m., our business hours being from eight to seven. They mostly retire to bed about 10 p.m. This means that they have only two hours of each week-day at their own disposal. If, therefore, daylight for, say, one and half of these two hours could be given to them during the summer months it would prove an inestimable boom. The Englishman by nature is a born gardener, and fond of out-door sports and hobbies, but he cannot practise these in the dark. A great deal has been said of the glorious sunrise, but I do not think if this Bill is passed many more people will see the sun rise at midsummer, but the great charm of the Bill is that it will give to the working classes and others a great deal of daylight between the hours of 8 and 10 p.m., and these are really their only hours of recreation. The more one mixes with the working classes the more one admires their enthusiasm for hobbies and sports. I have one man who rushes off to the Green Park every Thursday, and arrives just in time to hear the National Anthem played. Another can be found each Sunday on the banks of the Lea, fishing. Another, whose religious scruples will not allow him to break the Sabbath, can be seen gardening by lantern light. Others I have seen also starting at 8 p.m. for a bicycle ride in the country with their lamps alight. Another lad won an open lawn tennis tournament last year at Harrogate, and the only practice he had was about half an hour (whilst the light lasted) each evening for three weeks before the event. Take any provincial town at the hours 8 to 10 p.m., and you will see the youth of both sexes congregating at the street corners in the dusk on summer evenings with nothing to do. A point I have not yet seen raised, but which I am certain will result by the passing of this Bill, is that there will be a great diminution in the number of illegitimate births. Everyone knows that after sunset it turns colder, and, although perhaps not dark, the temperature is not congenial to remaining out of doors without exercise. I notice that the railway companies are in favour of an alteration of the clock, and that so far there has been no organised opposition by the lighting companies. Perhaps these latter are wise in their generation, as any figures they might produce would be the greatest advertisement the Bill could have. Now I have taken the trouble to go amongst my employees, those who are married, to find out what they spend in artificial light. It is notorious that the working classes, having regard to their wages, are extravagant in artificial lighting. They mostly go in for the "penny-in-the-slot," and from inquiries I have made, I find that each house consumes about 2s. 6d. worth of gas per week in winter, and 1s. 6d. in summer. This usually includes the married couple and family and the front-room lodger. I therefore estimate that on the average there would be a saving of 1s. per week per house during summer.

Chairman—continued.

Mr. *Pirie.*

1868. Per week?—Per week. With regard to the method of making the alteration, I believe that in theory Mr. Willett's suggestion of 20 minutes per week for four weeks is good, yet I think that one alteration of one and a half hours would be found to cause less confusion. An alteration of the clock is in my opinion the only method of getting people to rise earlier, and if I were bringing this Bill before Parliament I should call it "A Bill to make the sun set one and a half hours later." Everybody I have discussed the Bill with has, after understanding its object, agreed with it and in favour of its being passed, and only require a date to be fixed by Parliament when to make the alteration to the clock. I am opposed to a change all the year round. A man will sit up after sunset, but he objects to get up in the dark. As a further point in favour of a longer day in summer, I find, personally, I do not require so much sleep during the summer months.

Chairman.

1869. You consider generally that it would redound to the advantage of the big shops and establishments in London?—I think it would more than to any other class. We, as retailers, have to suit the business to our customers; we cannot alter our hours, we are so mixed up with all other trades.

Mr. *Holt.*

1870. Why do you think it will reduce the number of illegitimate births?—Well, Sir, I think this: If you have it dusk at 10 o'clock instead of at eight o'clock the opportunities are less.

(*The Witness withdrew.*)

Mr. R. B. BROOK-GREAVES called in; and Examined.

Chairman.

1871. I understand you produce a diagram?—Yes (*handing in same*).

Mr. *Pearce.*

1872. You reside at 66, The Grove, Hammersmith?—Yes, Sir.

1873. And you prepared this diagram?—Yes.

1874. Will you just say something about it to the Chairman and the Committee? Will you explain it; I do not know whether I quite understand it?—I prepared that for my own use two or three years ago. I have used it occasionally, just for a skeleton diary.

Chairman.

1875. In connection with what scheme; is it an idea of your own?—Yes; then somebody suggested that it might be of use to show the amount of daylight saved.

1876. How many hours of daylight does your scheme give?—*This* is Mr. Willett's scheme (*indicating the diagram*).

1877. What is it you had worked out before of your own? I understood you to say you had worked out something two or three years ago?—Simply the diagram itself, for my own use.

Mr. *Pearce.*

1878. Might I say that the dark hours are represented by the darker circles on this diagram?—Yes.

1879. And the morning dark hours?—Yes, and the evening dark hours.

1880. And the evening dark hours. The daylight is represented between the two red lines?—Yes.

1881. The smaller red circle represents the sunrise?—The sunrise.

Mr. *Pearce*—continued.

1882. And the greater red circle represents sunset?—Yes.

1883. It is, as I understand, arranged carefully for the time of sunset all the year round?—Yes.

1884. According to Greenwich mean time?—Yes.

1885. Then the blue circle—the broken circle—is the line of clock alteration suggested by the terms of the Bill?—Yes.

Chairman.

1886. It is a very interesting diagram, and shows a great amount of trouble and industry.

Mr. *Pirie.*

1887. What induced you to undertake this work?—I have always been interested in the subject, and I have taken the calendar as a circle—that is to say, the year as a circle—and I thought it would be a good thing to visualise the time of the year; and the idea came out in the form of a calendar—a circle.

1888. You are interested in the project of this Bill, are you?—Yes, I approve of it, decidedly.

Chairman.

1889. Do I understand you to say that this diagram is made in connection with Mr. Willett's scheme for the increase of daylight?—Yes.

1890. What does *this* represent (*pointing to the diagram*)?—*That* is to show the amount of gain, practically.

1891. *That* is to represent the gain of the 210 hours that Mr. Willett claims for his scheme?—Yes.

(*The Witness withdrew.*)

Tuesday, 2nd June, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. T. HUBBARD called in; and Examined.

Chairman.

1892. Have you come here as a representative of a large body of working-men, or do you represent any association?—No, I do not. I had better just say how I became interested in this Bill. If you will allow me to read a statement perhaps it will be better. "My attention was called

Chairman—continued.

Chairman—continued.

called to this matter by a business friend in the railway train a few weeks ago. Up to then I had not given any serious thought to it. He kindly sent me on Mr. Willett's pamphlet on 'The Waste of Daylight.' I read this with great interest, and there seemed to be something to say in its favour. Any scheme that enables work to be done under better conditions is well worthy of the consideration of the British Parliament." Having read the paper, I must say that, if one difficulty can be got over, I think it will be a very good thing.

1893. What is that difficulty?—Moving the clock.

1894. What is your suggestion?—I have made a calculation. We have worked Mr. Willett's scheme out on the basis of our present working. Perhaps I had better explain. We commence to work at eight o'clock in the morning.

1895. When you say "we," whom do you mean?—I am manager of the Co-operative Wholesale Society's Boot and Shoe Works, Leicester. We employ 2,000 workpeople.

1896. That is what I wanted to get at?—I beg your pardon. Excuse me in this matter, but it is my first appearance.

1897. No harm is done. We shall be very glad to have your evidence?—I represent the Co-operative Society, whose headquarters are at 1, Balloon Street, Manchester. They have works at various parts of the country, and amongst their works are the shoe industry works. Leicester, as is well known, is a centre of the shoe industry, but I am speaking for myself now.

1898. You have no authority to speak for your organisation?—No. I have no authority to speak for my Directors. As I have said, we have worked Mr. Willett's scheme out on the basis of our present working. We commence at eight o'clock in the morning, work until the mid-day meal, recommence at two o'clock, and work till 6.30 p.m. We find that we should save only in the second week in September, 2½ hours, and in the third week in September, five hours. This, multiplied by 2,000, which is the number of workers that we have, would save 15,000 hours of artificial light. That is our present working. But if the time of commencing work could be lifted one hour earlier for the whole year, we should save the following hours from the use of artificial light. I have taken the working hours of 1908 as a basis.

1889. From eight o'clock to 6.30?—Yes; January, 23 working days, half an hour a day, 11½ hours. February, 19 working days, half an hour a day, 9½ hours.

1900. I do not think you need to go into all these details, because, if there is really that saving all the year round, we can work that out perfectly. I would point out to you, with regard to the suggestion of putting on the clock for an hour for the whole year, that for practically 6½ months you do not get any extra daylight. You see that? Daylight does not commence practically, to all intents and purposes, until about eight during the winter months?—Yes. It would affect five months during the year.

1901. Yes?—To put it briefly, the total hours

Chairman—continued.

are 65½. If it was lifted up an hour a day, multiplied by 2,000, which is the number of our workers, it would give us 131,000 hours of daylight saved.

Mr. *Richards.*

1902. Artificial light saved?—Yes, artificial light saved. Our people, I may say, prefer to commence working earlier in the morning. We have sometimes, unfortunately, to work over time, and they always prefer, if possible, to work the overtime in the early part of the day.

1903. They prefer to work the overtime in the morning?—Yes, they prefer to work the overtime in the morning.

1904. What is it that prevents your association from starting earlier?—The hour of commencng is the custom of the trade in Leicester.

1905. Are there any material hindrances besides the sentimental impediment of custom?—I do not think so.

1906. You, having considered the matter in all its bearings, are of opinion that it is as well to have an alteration of one hour for the whole year?—Yes, that is my opinion.

1907. Would you recommend this being done by legislative machinery or by organisation among the general body of the workers in the country?—I think that it should be done by Parliament.

1908. You consider that the advantages of putting on the clock would be very material?—Yes, I do.

1909. In more ways than one?—Yes, in many ways.

1910. You think that it would be conducive to immense economy in the use of artificial illuminants?—Yes; that is so, it would be economical.

1911. Previously to this meeting of the Committee, it has been suggested that if you get workmen to leave off work earlier it might be conducive to their spending more money in getting about, and that what advantage you would gain in one direction you would lose in another. Do you think there is anything in that contention?—I do not think so. I do not think that it would be a temptation to working-men. They would have more leisure at the end of the day, which is necessary, and I believe as a rule they would use it to their own advantage.

1912. You desire that Parliament should issue forth an edict that work should commence at a certain hour?—Yes.

1913. Rather than the provisions of the Bill, which leave everybody at perfect liberty to do exactly as he likes?—I think that it would be more beneficial.

1914. Have you considered the prejudice that a compulsory arrangement of that sort would bring about?—Yes. We practically now have to work within certain specified hours by Act of Parliament.

1915. But let us assume that the Bill passes, and that some sort of alteration of clocks is agreed to by Parliament without compelling anybody to begin work earlier or leave off earlier or to make any arrangements other than those which are suited to the person concerned. Do you not think

Mr. *Richards*—continued.

think that that would be a far better method of proceeding ?—Well, it is always better to get the consensus of opinion of the people affected rather than to proceed by Act of Parliament. I concede that at once.

1916. Have you considered that the compulsion as regards 6½ months of the year would be practically nugatory during the months that the sun rises late ?—Yes.

1917. How would you get a regulation of that sort to work ? If Parliament were to say that people were to begin work at six o'clock in the morning you could not expect them to begin at six on a dark winter morning, and if they did so there would be a great loss of artificial light ?—As far as our industry is concerned, one hour would be sufficient; that would be seven o'clock, you see.

1918. During the winter months it is pitch dark at seven o'clock. During four months of the year it is practically pitch dark then ?—Yes, that is so. It is dark for a certain part of the year at that time.

1919. So that the effect of a compulsory Act would be practically nugatory as regards those months ?—Yes, as far as saving artificial light in those months, that is so.

1920. Therefore certain other alterations have to be made ?—Yes.

1921. So that I put it to you that the suggestion that you make is not in all material respects practicable ?—Perhaps I have not looked at it from that point of view.

Mr. *Pearce.*

1922. Carrying that a little further, of course there are great numbers of men who work in shifts ?—Yes.

1923. Who work in shifts of time like miners ?—Yes.

1924. Any Parliamentary rule in regard to the hour for beginning work would be quite inappropriate to them ?—Yes, that is so.

1925. It might suit the boot trade in Leicester to begin an hour earlier, but you would hardly recommend that a special law should be made regulating one industry ?—No, I do not recommend that.

1926. The present hours for beginning work in all the various trades everywhere are the result, are they not, of practice and convenience ? Is that not so ?—Yes, I should say that is so.

1927. The effect of which has been that we have gradually ruled our time for beginning work by the darkness of winter. Is that not so ? We begin rather later ?— Yes, in some trades that is so.

1928. Almost all over the country we begin later, and we neglect the early morning hours in summer ?—Yes, that is so.

1929. Have you read the Bill ?—Yes, I have read the Bill.

1930. You see that the Bill itself says nothing about the hours for beginning work ? It says nothing about daylight even, except in the title ?—Yes.

1931. The proposition in the Bill is to make a common rule about beginning an hour earlier on Sunday mornings in April and September.

Mr. *Pearce*—continued.

Is that so ? Do you understand that ?—Yes, that is the Bill.

1932. Now, I want to ask you whether in your judgment, not limited only to your own trade, the hour chosen in the Bill is the right hour for making a change ?—The early morning, I should think, is the best time.

1933. The early morning on Sundays ?—I am afraid that there would be a little difficulty if you altered the clock on Sundays.

1934. There is nothing in the Bill about altering the clock. I am speaking of the shortening of the hours and the lengthening of the hours in April and September on Sundays. Do you agree that Sunday is the best day ?—It would not affect us, of course.

1935. But do you agree that Sunday is the best time for the change ?—Yes, I do agree.

1936. Have you heard the suggestion that the change should be made during the hours of morning service on Sunday, making the service shorter on Sunday mornings in April, making up for it by making them longer on Sunday mornings in September ?—I have not heard of that.

1937. You have not heard that suggestion ?—No, I have not heard that.

1938. Would you consider that alternative a better one than a change in the night ?—I consider the morning is the best time to change it.

1939. The early morning, that is to say, in the night ?—The Bill suggests two o'clock, I think.

1940. Between two and three o'clock ?—I think that would be the best time, and if the difficulty of time could be got over I think it would be a very good thing.

1941. Have you thought about the length of the change—whether it should be in periods of 20 minutes or not ?—I think it would be better if it could be one change.

1942. And that one change of one hour ?—Yes, that one change a change of an hour.

Mr. *Holt.*

1943. I understand you to say with regard to the hours that you work at your boot factories that you begin at eight and finish at 6.30 ?—Yes.

1944. All the year round ?—All the year round.

1945. You think, and your workmen, I gather, think too, that it would be better to begin work a little earlier ?—Yes.

1946. I presume that you have a trade association ?—Yes.

1947. That association probably rules a good many things ?—Yes, it does rule a good many things.

1948. We have had plenty of evidence that other trades have altered their hours by consent. Now, what on earth is there to prevent your trade association from passing a resolution that you shall begin at seven o'clock and end at 5.30 ?—I do not know that there is anything to prevent that.

1949. Has that resolution ever been proposed ?—I do not know; we are not members of the Federation.

1950. But if you did adopt the hours of seven o'clock to 5.30, you would then be working almost exactly

Mr. *Holt*—continued.

exactly the same hours as dock labourers. Now, if you want to work at earlier hours, would it not really be much simpler to call all the people in your trade together and propose to this Federation that the hours should be altered ?—You see, we have no standing with the Federation. The Co-operative Boot Manufacturers' Association are outside the Federation.

1951. But would it not be much simpler for boot operatives, who also, no doubt, have a trade union, to do as I suggest ? They have a trade union, have they not ?—Yes. I do not know what their opinion is on the matter. They have a very strong organisation.

1952. It would not be at all a difficult thing, if there was general agreement in saying that it was the intention to work from 7 to 7.30. There would be no great difficulty, would there ?—No, there would be no great difficulty.

1953. Does it not strike you as rather unreasonable that because you want to alter your hours from 8 o'clock to 7 o'clock, other people should have any amount of pressure put upon them to alter their hours from 7 o'clock to 6 o'clock ?—I was giving my views on the matter as it effects our trade. Each trade has its peculiarities, of course.

1954. Quite so. You said, I think, that if this was done, working-men would have more leisure at the end of the day ?—Yes, that is so.

1955. You do not contemplate that they would go to bed any earlier, do you ?—They possibly might. They would get tired an hour earlier, would they not ?

1956. But if they went to bed correspondingly earlier they would not have more leisure ?—They would have more daylight.

1957. They would have more daylight, but not more leisure. If they went to bed an hour earlier they would not have any more leisure ?—It depends on whether they go to bed, of course.

1958. The obtaining of more leisure entirely depends upon their leaving off work an hour earlier and going to bed at the same time ?—Yes, that is so.

1959. The only difference if you leave off work earlier and go to bed earlier is that you get more leisure in the daylight ?—Yes.

1960. You would not get more leisure in the total ?—No ; that is so, but you would get more leisure in daylight.

1961. They would not get more leisure in the total ?—That is so.

Mr. *Richards.*

1962. May I ask how many people you have at the Knighton Works ?—We have 1,550 there, and 450 at Dunn Lane, which is under the same control.

1963. Do the Enderby works come under you ?—Yes, there are about 200 there.

1964. What hours of work have you known in the trade ? For instance, when you first knew the trade, what were the hours of work then ?—We commenced at 6.30 in the morning in the summer months, and at 8 o'clock in the morning in the winter months.

Mr. *Richards*—continued.

1965. You had practically three breaks during the day ?—Yes.

1966. Breakfast, dinner and tea ?—Breakfast, dinner and tea.

1967. Now the trade has abandoned two of the breaks ?—Yes.

1968. They have abandoned the break for breakfast and the break for tea ?—Yes, we have only one break per day.

1969. In the old days did you find any difficulty when you wanted certain work done, if you just gave the order that it must be done, in getting it done. Supposing that you gave work out at six o'clock at night to a man who worked at home, and that you wanted it by eight o'clock the next morning, you did not bother, did you, about the time he got up ?—No, we did not trouble about that.

1970. What was the reason why half-past six was abandoned ?—I think it was when the whole of the industry came under factory control instead of the work being done at their own homes.

1971. Had not the breakfast hour something to do with it ?—It might have been a determining factor, but I think that the other was the most influential factor in the case.

1972. You used to start work at half-past six in April, and go on up to September ?—Yes, commencing the 1st April and leaving off in September.

1973. If the suggestion that you make of starting work one hour earlier in the shoe trade, say at seven o'clock, were adopted, and you adopted the same principle as is now adopted, would not that necessitate some men getting up at six o'clock and having breakfast at half-past six o'clock. Those who live out of Leicester and have to come to your place would have to get up at about four o'clock ?—Not quite so early as that.

1974. Many of them have, I know, 40 or 50 minutes' walk. Then you would have to use artificial light in the winter mornings ?— We should have to in that case, of course.

1975. Usually the shoe trade is not a busy trade in the winter ?—That is so.

1976. You only wish that it was. Operatives wish that it was ?—That is so.

1977. They wish that it was busy in the winter and that it eased off in the summer ?—Yes, we should like to reverse it. We may be working towards that.

1978. You would like to alter the seasons ? —Yes.

1979. You think that there would be no difficulty if a general rule or a law was come to, that should be observed by everyone, which necessitated a man having to get up and start work at seven in the morning or six in the morning and have breakfast before he went. You do not think there would be any difficulty in that ?—I do not think so.

1980. With regard to the advantages which you suppose would ensue, there is not the least doubt that many of your members are allottees ? —Of what ?

1981. They have gardens ?—Yes, I mentioned that in my written remarks, but I did not have time to read it.

Mr. *Richards*—continued.

1982. The suggestion would give them a longer time to spend in their allotments?—Yes, that is so. Leicester is rather proud of its allotments.

Chairman.

1983. Small holdings?—No. They are not small holdings, they are allotment gardens.

Mr. *Richards.*

1984. I think that they improve the character of the men. Do you think that another advantage would be gained? Do you think, with regard to young men who are interested in cricket in the summer time—I will not say football in the summer time, but cricket—that it would be possible for them after working hours to play a match?—Yes, I think so.

1985. They have not the facility now for doing so after working hours, except on Saturdays?—No.

1986. Operatives can only play on Saturday afternoons?—Yes.

1987. Bank clerks and so on may be able to play after working hours, but operatives cannot. They are confined absolutely to Saturday afternoon?—Yes.

1988. You think that on the whole it would be beneficial?—Yes, that is my opinion.

Chairman.

1989. After the cross-examination do you see any reason to alter your opinion as to the desirability of making a permanent alteration in the time?—I think that a permanent alteration would be beneficial.

1990. In spite of the fact that during the greater part of the year more artificial light would have to be used. If you had to begin work at 6 o'clock during the winter months instead of at 7, would not that entail the further use of artificial light?—It would, but I do not take that to be the meaning of the Bill.

1991. The Bill says that the alteration is only to be for six months of the year—from April to September?—Yes, that is so; but, as far as we are concerned, we should not commence at those hours in the winter.

1992. You would not commence?—No. We commence at 8 o'clock all the year round, and I take it that the Bill would only be dealing with the summer months. That is how I take it. Is not that so?

Mr. *Pearce.*

1993. Yes?—Shall I read it?

Chairman.

1994. The Bill merely says that certain alterations shall be made during the months specified. That does not compel anybody to start work earlier or to leave off earlier or to do anything except what suits him?—I quite understand that.

1995. Is it your suggestion that if a permanent alteration were made in the time the great working organisations would have two different hours of starting work—one during the daylight months and one during the winter months?—I think that it would be a great advantage if you could have one uniform hour of starting.

1996. That is perfectly true, but I want to get this from you: supposing we had this permanent alteration of one hour, would the labour people have one hour for beginning work during the summer months and during the late autumn and winter months another hour for beginning work?—I think it probable, because it would be a waste of light in the winter months.

1997. Would these alterations make it easier to have some uniform time for a midday mea for working-men?—I think so.

1998. More than obtains at present?—Yes; and that would be a great benefit gained no doubt. Take Leicester, for instance. The building trades have their midday meal at 12 o'clock, and other industries have their midday meal at one o'clock; the children come home from school at 12 o'clock, and I feel sorry for the women who have to cater for three or four sets of meals in one day.

1999. You think that that is a very desirable object to aim at?—I think that it is a very desirable object to aim at. I emphasise that fact.

2000. Now, with regard to greater leisure, Mr. Holt suggested that no such thing would be obtained if you went to bed an hour earlier. May I say that the people would have greater leisure for the enjoyment of outdoor life and all the amenities connected with it?—Yes, which would be an advantage.

2001. Do you think that it is likely to have any influence on the closing hours of public-houses?—I have scarcely looked at it from that point of view.

2002. You have not considered that?—I have not done so.

2003. You have nothing to say with regard to that?—I have no data with regard to that.

Mr. *Pearce.*

2004. I should like to make one point clear, and that is with regard to what you mean by permanent. The proposals are to make a change in the summer time?—Yes, I understand that.

2005. And to revert to the winter practice in September?—Yes.

2006. Is that what you are in favour of?—I am in favour of an hour all the year round—one change.

2007. What value is there in calling 8 o'clock 7 o'clock all the year round? Of what use is that?—I do not know that there is any intrinsic value in it.

2008. But we are not making a proposal in which there is no value. We are proposing to use daylight?—Yes. But I suggest that to get the advantage of the daylight you should lift the hour all the year. Of course, that is a matter of opinion.

Chairman.

2009. Thank you.

(*The Witness withdrew.*)

Sir WILLIAM RAMSAY, K.C.B., called in; and Examined.

Chairman.

2010. You are a Professor of Chemistry?—I am—at University College.

2011. You are interested in all expedients for the saving of time and labour?—I am.

2012. And generally for the greater convenience of mankind?—Quite so.

2013. Have you fully considered the bearings of the Bill?—Yes, ever since it was first suggested.

2014. What are your views as regards the method of procedure which it contemplates adopting. I think it is eminently rational. I believe that there is some question as to whether it would be advisable to make a sudden alteration of one hour and 20 minutes, or to divide it into four portions of 20 minutes. I am very much in favour of the last proposal. As a traveller, one is always confronted with the loss of an hour. It is a serious thing. You either are tempted to spend an hour too much in bed, or to grumble because you get an hour too little sleep; but I do not think anyone would notice four alterations of 20 minutes, and I think that, if it were possible to begin slowly at first and for the first few years not make the whole alteration, at all events, it would be a scientific way of trying it to see whether people would submit to such an alteration, and if necessary the amount of time could be increased to the hour and 20 minutes proposed.

2015. But would not that very tentative and experimental alteration considerably emasculate the apparent advantages to the public of the Bill? People would say, "We are 10 minutes earlier." What is the good of that?—I should not begin with 10 minutes. Supposing that you began with two periods of 20 minutes, it would make some difference. However, I do not press the point. I think that it might be as well to begin with the full quantity of time.

2016. You think that the method suggested by the Bill is perfectly practicable?—I think that it is perfectly practicable.

2017. Perfectly practicable and feasible, and that legislative machinery might perfectly justifiably be resorted to?—Yes, I think so. I should like also to point out that from the scientific point of view there can be no possible objection. It does not interfere with any astronomical reckoning of time.

2018. Nor with navigation?—Nor with navigation; in fact chronometers will run in the old fashion. Every instrument required to keep accurate time will go as before.

2019. Have the astronomers of the Science Guild considered the Bill?—Yes, and the feeling of the Science Guild, I am sorry to say, is that any tampering with time is a mistake. We discussed the point, but I could not convince them. I dare say that you will hear their evidence that it is a great mistake to tamper with time.

2020. How is the Guild composed? Is it composed mainly of astronomical people?—No. the Chairman, Sir Norman Lockyer, happens to be an astronomer.

2021. The Guild is mainly composed of scientific people?—Yes, almost entirely scientific people, or people who take an interest in science.

2022. Have they practically unanimously decided to oppose the Bill?—No. On the contrary there are some employers of labour who are in favour of the Bill. Sir William Mather, a large engineer, is one of the members, and he is very strongly in favour of the Bill. We were by no means unanimous, but there is no use in pushing an argument which is not approved of by the whole Guild. We find it generally politic when we disagree upon certain matters, not to push them. Our object is to push those things which are useful, and upon which the whole Science Guild is agreed.

Chairman—continued.

2023. The Guild do not consider the principle of the Bill as of sufficient importance to accentuate any cleavage of opinion amongst the members?—No. They had pretty largely to reckon with the opinion of Sir Norman Lockyer, who is very strongly against any alteration of time, and Sir David Gill, the late Astronomer at the Cape, takes the same view. He thinks that it would be a mistake to alter the time, because of the possibility of introducing confusion in reckoning, I fancy. That is all.

2024. And yet Sir David Gill happened to be at the Cape when an alteration was made in the time?—Yes.

2025. I frankly admit that it was a permanent alteration?—It was a permanent alteration.

2026. In which respect it differed from the provision of the Bill?—Yes.

2027. The Guild did not go into the alternative problem of having some sort of legislative sanction for the earlier opening of the day's work?—The suggestion was made that that ought to happen, but it is obviously impracticable. You cannot insist upon work being commenced at any particular hour by Act of Parliament, and the matter was allowed to drop.

2028. And yet, in the Factory Acts, there is sumptuary legislation of that description?—I do not think that it would meet the views of the supporters of the Bill that such sumptuary legislation should be pushed. A Committee was appointed, and it met once, and after discussion, there was obviously so much difference of opinion, that the matter was dropped.

2029. And they do not contemplate resuming it?—I think not.

2030. Evidently not. You are here to-day merely speaking for yourself?—I am merely speaking for myself.

2031. Will you make any general observations on the bearings of the Bill?—With regard to the student question, I think that it ought to be noticed that there are very large numbers of students and school children in the country. I come into contact with large bodies of students who spend their Saturday afternoons in playing games for the most part. I think that it is obvious that if they could get more light for their games it would be a great advantage. Then there is another point with regard to which I do not know whether it has been seriously considered, and that is the question of eyesight. Has that been thought of? There is no question that there is very much less danger to the eyes if daylight be used, than there is if artificial light be used.

2032. I think that that is generally admitted?—The lengthening of the hours of daylight would do

Chairman—continued.

do a good deal to relieve the strain on children's eyes, and it certainly would have some effect.

2033. From the scientific point of view, you yourself do not see any valid or insurmountable objection to some alteration being made in the time?—I can see absolutely none.

2034. Apart from the question of method?—Yes, I can see absolutely none.

2035. You would most decidedly be in favour of the gradual alteration forecasted in the Bill, rather than a permanent alteration over the whole year?—Yes, and I think the suggestion to alter the time at two o'clock on Sunday morning is a very reasonable one, provided that the railway companies can arrange it.

2036. Do you say anything as to an alternative suggestion of an hour's alteration for certain daylight months of the year?—You mean a complete hour?

2037. A complete hour, or an hour and 20 minutes; the difference being as between a permanent alteration of one hour and a partial alteration extending over, say, five and a half months?—I think that the partial alteration is better.

2038. A permanent alteration would, in your opinion, hardly be workable. It would hardly give the advantages?—I do not think it would give the advantages. Has it been considered that in the northern parts of Scotland, for example, that would involve rising in the dark for a certain period during the month of April? I think that it does involve that. A working-man, for instance, who has to be at his business at six o'clock, I presume, rises about five, and if the time were altered he would have to rise at twenty to four.

2039. Of course, that only goes back to saying that the Bill is not compulsory in any way?—Exactly.

2040. It merely gives people opportunities of starting work earlier if the surrounding conditions are satisfactory, and propitious to such a course being adopted?—Yes, that is so.

2041. And, naturally, as between the Lowlands and Highlands of Scotland, even if the Bill passed in its present shape, there would be certain industries that would not start any earlier in April?—No.

2042. Not until the second fortnight in May, because the sun rises later, and consequently, in April, and until the middle of May, there would be no advantage in beginning work very much earlier, whereas in the Lowlands they might conceivably be perfectly in a position to take full advantage of the provisions of the Bill?—That appears to be the case. It may interest the Committee to know that I have lived through such a state of affairs in the Highlands, where an eccentric friend of mine put his clocks two hours on in order that the whole family should appear sufficiently early. It is a question of servants. Unless they are deceived in that way, they will not have the breakfast ready. They go according to the clock, and they have no objection to rising at 6 o'clock, if it is called eight.

Mr. *Holt.*

2043. I do not quite understand what you consider would be the gain in adopting this Bill.

Mr. *Holt*—continued.

Is it entirely a question of play-time for children?—And gain of light for working-men.

2044. Increased light for working-men?—Increased light for working-men, and for all the professions. In all the employments in which light is an advantage, practically everyone will save eyesight in the long run.

2045. I do not quite understand why it is that you think this could not be done by voluntarily adopting earlier hours in the summer months?—It could perfectly well be done, but no one would do it. It is an absolute impossibility to get people to adopt earlier hours.

2046. You thought that your friend who got his household to rise earlier by the method which you described was eccentric?—He lived about 10 miles from everybody. The alteration interfered with nobody.

2047. But do you really suggest that he could not have obtained the same results by requesting his household to rise at 6 o'clock?—I do not think that he could. I really think that the servants would have struck.

2048. I confess that I have never found it so myself, when I have wanted to do it?—As a regular matter? It is perfectly easy to get breakfast at 6 o'clock once in a way, but to breakfast regularly at 6 o'clock, I think, would involve dismissing one's domestics and finding others.

2049. I am happy to say that I have never wanted breakfast at 6 o'clock?—Have you not?

Chairman.

2050. You would bring about a miniature strike, I suppose?—I think that you would. It would be extremely difficult.

Mr. *Holt.*

2051. Do you think that these people are not sufficiently educated to realise what had happened, and would not discover that they had been deceived?—I think that they would accommodate themselves to the new circumstances. They really go according to the clock, and not according to time.

2052. You think that they would not discover that they were being deceived, or that if they found that they were, they would not mind?—They would not mind if everyone was put into the same position. There would be no difficulty.

2053. Have you considered the position of people—I do not know whether you have—who have commercial relations, or other relations all over the world, and who have to communicate by cable with other places? Might it not be very inconvenient to them to find that the relative time in this country and in other countries, such as the United States of America, was not always the same?—I do not think it would. It must be remembered that within a very narrow borderline—I suppose an absolute line on the surface of the globe—time alters one hour.

2054. Quite so. I want to point out that the difference in time between, say, London and New York, or London and Sydney, or any place that you like to think of, that is now always the same, would not be always the same if this Bill were adopted?—That would be a distinct disadvantage, and the question ought to be weighed whether that

Mr. *Holt*—continued.

that disadvantage is compensated by the corresponding advantage to be gained for our own population.

2055. It is a distinct disadvantage, is it not, that the relations of time between this and other countries should be liable to fluctuate?—It means that people are obliged to think—that is all—and the less thought the better.

2056. I gather that you do not think that the servants would be able to think enough to find that they had been deceived?—I do not think they would.

Mr. *Pearce.*

2057. It is agreed that there is that difficulty with regard to the time of other countries?—There is that difficulty.

2058. Which Mr. Holt has pointed out?—Certainly.

2059. The sidereal day is the most invariable time, is it not?—Yes.

2060. When our friend Sir Norman Lockyer talks of tampering with the time, do you see, or does he see, any way of tampering with the length of the sidereal day?—It is absolutely impossible.

2061. So far, then, we cannot do it?—No, we cannot do it.

2062. The sidereal day as reckoned in our measurements is 23 hours, 59 minutes and 4 seconds?—Yes, I believe so.

2063. There is a difference of 56 seconds?—Yes, I think it is 56 seconds.

2064. How has it happened that the sidereal day, which is the most invariable, has not been divided into 24 hours?—Because we prefer to go by the sun, rather than by the stars.

2065. It is not a question of sun, is it? The sun time varies far more than that?—That is true, from day to day; but from year to year, no. I mean, we get the solstices occurring at the same times every year. We average it out. It is merely a matter of popular convenience.

2066. It is a mean—an average day?—Yes.

2067. It is never exactly consistent with anything natural?—Never.

2068. It is a convenient arbitrary arrangement for chronometers and matters of longitude, and so on?—Yes.

2069. The variation being met by allowing for what is called the equation of time?—Yes, but no astronomer would ever dream of using any time but sidereal time.

2070. He uses sidereal time because it is so invariable?—Because it is so invariable.

2071. The object of the Bill is not astronomical. The object contemplated in the Bill is to make use of daylight?—Yes.

2072. And as an expedient for that, there being no magic in clocks, we are proposing to indicate time in the summer months differently from the indication in the winter months?—Yes, that is so.

2073. I understand that you entirely agree with it?—I entirely agree with it. There is really very little inconvenience, for example, in crossing to Ireland, where there is 20 minutes' difference. In a moment you have realised it.

Mr. *Pearce*—continued.

2074. Have you thought out the method of making the change?—I think that the method suggested in the Bill is the best that you could have or that could be devised.

2075. I am speaking now of the practical way with regard to the alteration of clocks. Have you thought about that?—I presume that the standard timekeepers in the various towns and villages, the church clocks and so on, would be altered.

2076. We had an authority on clocks here the other day who preferred the 20 minutes' alteration, because when you wanted to shorten the hour you would drop the heavy minute hand in the public clock from 10 past the hour to half-past the hour by gravity?—Yes.

2077. He recommended that the change of shortening the hour by 20 minutes and lengthening the hour should be done by dropping the hand from 10 minutes to the hour back to the half hour by gravity?—Yes.

2078. And he explained to us that that was better than other changes, which could not be so conveniently made on the clocks. Do you agree with that?—I really have no knowledge of the mechanism of clocks.

2079. You cannot throw any light upon that?—No, I cannot throw any light upon that.

Chairman.

2080. We may take it from you, Sir William, that you are distinctly in favour of the 20 minutes' alteration as against the alteration of an hour all at once?—Yes, I am.

2081. You consider that the objections that have generally been raised to the scheme are trivial?—Yes.

2082. And ill-considered?—I think they are. I very strongly support anything that makes for public convenience. We submit to an immense number of little things—I could give half-a-dozen instances, but it is not worth while—where we are subject to inconvenience simply because we will not put the things right. Take for example one pound notes in Scotland and Ireland. Why does one have to pay sixpence on cashing them in England? We have not a uniform monetary system for the country. Then why keep our ridiculous system of weights and measures, where one has to remember all sorts of things, which would be quite unnecessary if our system was not what it is. There are dozens of such cases, and anything that would tend to simplify our lives in that way and to give us less to think about would be of very great advantage.

2083. The scheme, however arbitrary and capricious it may seem at first sight, is really a very workable and very feasible plan, you think?—It appears to me to be a very workable plan indeed.

2084. You think that it will conduce to economy in a great many households and in a large number of industries?—Yes, and I think that is very important. It will also tend to preserve the eyes. A very large number of school children suffer from defective sight, and no doubt anything that you can do to lessen the strain on the eyes will diminish that number. Giving greater daylight for work will certainly tend in that direction.

It

Chairman—continued.

It may not do it, but it will tend in that direction.

2085. You are also of opinion that the advantages of the Bill could not be secured otherwise than by legislation ?—I am quite certain of that. People will not agree to anything unless they are made to do it.

Mr. *Holt.*

2086. Do you not think that most of the children who have defective eyesight get it before they commence using their eyes by artificial light ?—Probably the tendency is there, but it is not necessarily developed. It is rather astonishing that in Germany, where the character is an awkward one to read, the number of short-sighted children is so very much larger proportionately than it is in England.

2087. They do their reading by daylight ?—They may or they may not, but I mean to say that the difference even between a complicated and a simple character appears to affect children's eyes, and anything that will tend to relieve the strain is an advantage. The proposals of the Bill will go in that direction. I do not say that they will effect a radical cure.

2088. My own experience is that my eyes were hopelessly damaged long before there was any question of my working by artificial light ?—No doubt that is so, but a good deal of harm is done by the strain of reading in an artificial light.

Chairman.

2089. You think that the greater use of artificial light tends to accentuate and to aggravate any ocular infirmity ?—Yes, it tends to accentuate any infirmity that is there.

Mr. *Holt.*

2090. No doubt that is so ?—Yes.

Mr. *Richards.*

2091. I suppose you are aware that this would probably affect 12,000,000 of young people under the age of 20 years ?—Yes, something like that.

2092. I may speak for myself, as Mr. Holt has given a reference to himself. I never had to set up glasses until I was thrown into an occupation where I had to do a lot of work by artificial light. I do not use them now, because I am not obliged to write at night. I found that in about 18 months my eyes gave way. I went to an oculist, and he said that it was due to my working by artificial light ?—Yes.

2093. Probably you are aware that it is not until after dark that the child begins to read a book studiously, in the hope of sitting up ?—Yes. I would like to point that out.

2094. In the hope of not going to bed ?—That is true.

2095. Do you suppose that it would be stretching it too far to say that men who are accustomed to working in the fields, who get up early in the morning, want to go to bed earlier at night because they are fagged and worn out ?—Yes.

2096. It is only those of us who get up late who want to sit up late ?—That is true.

Chairman.

2097. We are very grateful to you, Sir William, for taking the trouble to come ?—I am glad if I have been able to be of any use.

(*The Witness withdrew.*)

Mr. GILBERT BARTHOLAMEW called in; and Examined.

Chairman.

2098. You are Chairman and Managing Director of Messrs. Bryant and May ?—Yes.

2099. You are also Chairman and Managing Director of Match Manufacturers in London and Liverpool ?—Yes.

2100. What is the distinction between the two bodies ?—We have works in both places.

2101. You are a member of the Council of the London Chamber of Commerce ?—Yes.

2102. Would you favour the Committee with general evidence as to your opinion about the Bill both with regard to principle and with regard to methods ?—I am very much of opinion that it will be a very real benefit to working people if they can get an hour and 20 minutes more daylight in the summer months, and I have failed to see any serious inconveniences in arranging that, provided that it has to be done. I do not believe in an optional change at all.

2103. You believe that it would conduce to immense economy in the use of artificial illuminants ?—It must do so.

2104. And therefore it might conceivably reduce the number of matches that you would be able to sell ?—I am sorry you find it necessary to put that to me, because that would affect me quite seriously. I think I ought to be frank enough to say that that has been suggested to me when I have been arguing in favour of this Bill by friends of mine who like to chaff one in commerce. I am bound to say that if I considered that aspect of the question, I think that I should be quite as well off, if not better, because daylight is quite good in consuming my particular article, which is matches. If men have to be out in the open air more, or if they are able to be out in the open air more, I think they will consume more matches. Football matches are excellent things for me, particularly if the wind is keen.

Chairman—continued.

2105. What the Committee would especially like to hear you upon as a practical man of business is the relative advantages and attractions of the alternative methods of the alteration of time ?—I am bound to say that I have been a little mixed in my views as to that. I thought quite seriously at the outset that the minimum of inconvenience would be reached if there could be but one change in the spring and one in the autumn, but I think I am coming round rather to the view that is expressed in the Bill, that there will be a minimum of inconvenience by making the changes shorter. I do not sympathise a bit as a commercial man with the idea that we are going to knock ourselves to pieces by making another change in time as between

Chairman—continued.

between distant countries. I am familiar with cabling to distant countries. I have to do it all the time. We know quite well what the differences in time are, and I do not think we shall be likely to forget that there is another difference of an hour and 20 minutes. If I am cabling to-morrow morning to South Africa, for instance, I have to reflect in one way. I am obliged to think differently when I am cabling to South Africa from when I am cabling to the United States or Australia or New Zealand, but I do not find it a terrible strain on my capacity or on that of my staff to have to think. I was sorry to hear Sir William Ramsay say what he did about thinking. We are generally able to reconcile with our time the time in the country to which we want to cable, and we cable accordingly.

2106. You have to think Imperially and internationally as well as locally?—Yes, and we do not find it any great strain upon us.

2107. Your distinct view is, after considering all the circumstances of the case, that the advantage would immensely counterbalance any possible trouble or confusion that may arise during the earlier stages of putting the Bill into operation?—Enormously, I think. I think that probably working people may be a little troublesome at the outset, but those of my own workpeople to whom I have spoken on the subject are delighted at the prospect of getting another hour and 20 minutes of daylight. They think it will be worth taking all the trouble to get that.

2108. How many men do you employ?—We have a large number of women equally interested. In men and women, boys and girls, in the two works we have about 2,000.

2109. Have you a large proportion of married women in your employ?—A fair proportion. I think that from 15 to 20 per cent. of the women would be married women.

2110. With regard to them, the advantage of being able to leave off work earlier and getting more daylight would be a tremendous boon, would it not?—It would be a very great help to them. They would like it very much.

Mr. *Pearce.*

2111. Could you give any estimate of the proportion of your transactions abroad, and your transactions at home, in relation, for instance, to telegraphing?—Naturally the transactions at home are enormously larger. You are thinking of ordinary transactions?

2112. Yes?—I should think that 5 or 6 per cent. of our transactions would be with what you would call foreigners.

2113. Not more than that?—I should not think more than that.

2114. There would be inconvenience in wiring internationally with four changes in April, would there not? One week it would be 20 minutes?—Yes, that would be so—20 minutes.

2115. Another 40, and another 60, and another 80?—Yes.

2116. That would last for nearly a month?—Yes.

2117. The same thing would happen back again in September?—Yes.

Mr. *Pearce*—continued.

2118. Have you weighed that in thinking about the proposed change of one hour?—Yes, carefully.

2119. You prefer to make the change?—I prefer to make the change.

Mr. *Holt.*

2120. What hours do you work in your factories?—We begin at seven o'clock and close at six, with one hour—from 12 to one—for dinner.

2121. Is that the same both in London and Liverpool?—Yes.

2122. What in your judgment would be the difficulty which would prevent you from starting in the summer months at six o'clock and closing at five. Is there anything to stop your doing that?—Nothing whatever.

2123. Why do you not do it?—Because we prefer to work from seven to six. I have had a pretty long experience of changing hours. We have sometimes commenced an hour earlier in the summer than in the winter. After being at six for something like 30 years my colleagues and I and the workpeople, who are entirely with us, have come to the conclusion that closing at six in the evening is the best arrangement of all that we have tried. We consult our workpeople. If our workpeople said to me next week, "We would rather work at different hours," I should like to do what they wished, because it would probably make much more difference to them than it would to us. We used to begin at eight in the winter and close at seven. We have given that up in the last three or four years, and the workpeople prefer to finish at six all the year round.

2124. Have you tried opening at six and closing at five?—No. I think that it would be extremely inconvenient if we were to do it, and other people were doing the regular thing—extremely inconvenient.

2125. As a matter of fact you would like to substitute the hours of six to five in the summer, but you want to call them seven to six?—I did not say that I would like to. You must not say that you know I would. You do not know it. I have not said it. I would not, because it would be extremely inconvenient.

2126. But I understand you to say that you are in favour of the Bill?—It would be difficult for us, even if we closed our offices and works half an hour earlier than some other people do. We must be more or less uniform.

2127. But I understand from you that you are in favour of the Bill?—Yes, I am.

2128. And the effect of the Bill would be that, although working the same nominal hours, you would actually be working from 5.40 to 4.40?—Not at all. I am going to work still from seven to six.

2129. You are going to work for the same hours nominally?—I am going to keep the same time if the clock is altered, beginning in the morning at seven, as always, and finishing at six, but I shall get an hour and 20 minutes more daylight. That is what I am after.

2130. What you are going to do is, to do precisely the same thing as if you said, "We will open at 5.40 and close at 4.40"?—Pardon me, it is totally different.

2131. Why

Mr. *Holt*—continued.

2131. Why?—If everybody would do it, it might have a somewhat similar effect; but if I were to do it and other people were to remain where they are, it would be extremely inconvenient. I would not attempt to do it.

2132. That is perfectly clear. Then the use of the Bill entirely depends on everybody keeping to the same nominal hours?—I think it largely depends on that.

1233. And if everybody did not stick to the same nominal hours the Bill would be pretty nearly wastepaper?—I think that its utility would be largely destroyed. What is the use of passing a Bill if it is not to be acted up to?

2134. Acting up to it consists in maintaining the same nominal hours; therefore you must be of opinion that it is the nominal hours that attract people, and not the real hours?—But the nominal hours will be the real hours. I am not going to change. I am going to begin at seven o'clock and close at six all the time.

2135. You are ready to begin at seven o'clock and you are ready to close at six, and you really do not care what relation the terms "seven and six" have to the meridian at all?—I do not know that I do.

2136. As long as they are called "seven and six," one time is as good as another?—No, certainly not. If one time were as good as another, we should have the same amount of daylight all the time. It is because one time is bad and another is good that I want the good one.

2137. At the same time you would always call it the same thing?—I certainly think that that is the most convenient thing to do.

2138. I gather from what you have said that you think that the effect of the Bill would be to considerably increase the habit of tobacco smoking?—I did not say that at all.

2139. Yes, excuse me, you did?—No, I certainly did not.

2140. You said that you expected it would tend to increase the consumption of matches?—I said that if you wished me to discuss my own particular matter, I was bound to tell you that I should think that with more daylight there would probably be more consumption of matches out of doors. That is perfectly true; but if you suggest that I am going to tell you that men, because they are out of doors, are going to smoke more tobacco than they will smoke if they are indoors, I shall have to go into a very long story with you, because I have opinions as to that also. I have no grumbling with the men who smoke indoors—they are awfully good fellows—but there is not so much wind indoors as there is out. I shake hands with every smoker, Mr. Holt, that I meet.

2141. I daresay that you do?—And he is very grateful to me.

2142. No doubt he is; but from what you said, I rather gathered that you were of opinion that the gentlemen who were watching football matches would be smoking a good deal more than they would if they were indoors?—No, I did not say that at all. You put those words into my mouth. If I have not made myself clear I am sorry, but I have nothing to add to what I said as to that.

Mr. *Holt*—continued.

2143. You said that they would use more matches?—Yes.

2144. I only wanted to know why you thought they would do so. You say that you did not mean that they would smoke more tobacco?—No, I did not mean that. Please do not put me down as saying that I think this Bill will promote the smoking of tobacco, because I have not said that.

2145. I put you down as having said that you think that under the Bill people will use more matches in the open air?—Yes, but do be fair to me. I said perfectly clearly that it had been argued by my friends and commercial men that it was strange that I should be in favour of the Bill, because with less darkness there might be less consumption of matches. I say that there are compensations in most things, and I think that the extra daylight will probably compensate me. Ask me after two years' operation of the Act, and I will tell you exactly what has happened.

Mr. *Richards*.

2146. You say that your hours now are seven to six, and that the dinner hour is from one to two?—Twelve to one. We have two stretches of five hours, and one stretch of five hours on Saturdays.

2147. Twelve to one is the only break that you have?—That is the only break.

2148. You have no break for breakfast or tea?—No.

2149. At what time do you lock out?—Six.

2150. Yes, but I mean in the morning; up to what time do you allow the operatives to come in?—They can come in right up to seven o'clock. We have tried it in every conceivable way, and we are on the very best of terms now that we do not allow any margin.

2151. I was wondering what the effect would be if you made up your minds to open the factory at six, say, and have the dinner hour at 11. Mr. Holt does not seem to see the difficulty, and I should like you to explain the difficulty?—If that was confined to my works it would be extremely inconvenient. I do not know how the wives, for instance, would fare if they toddled home at 11 o'clock and found their husbands coming home at 12 to get their dinners. With the dinner hour at the same time, if they are near they meet one another. We have husbands and wives in our works, but a good many of our wives have husbands who go to work elsewhere. Those who are near enough get home for dinner just after 12.

2152. You would not be surprised if they revolted and refused to come at six, for instance?—They would revolt. They would not do it and could not do it.

2153. That is the reason, I suppose, why in factory towns certain hours are fixed. There are a variety of factories all working practically the same hours, and as far as possible members of the family who can get home to dinner all get home about the same hour, or within a few minutes of each other, and it is a convenience?—Yes, it is obviously a great convenience.

 2154. With

Mr. *Richards*—continued.

2154. With regard to the building trade this does not affect it, because generally the men employed on a job take their meals with them and eat them there, and do not go home to dinner?—Just so.

2155. I have been a factory operative, and I can say from my experience that whatever we do we like to act in conformity with one another?—I think it is absolutely necessary for the smooth working of commerce that we should have uniformity.

2156. Do you think that if such a Bill as this were passed by the majority of men, although they were not forced to adopt it, would respect the recommendation?—Yes. I think that they would very soon find that they must. I think that a large majority would begin by taking advantage of the operation of the Bill, and that they would be speedily followed.

2157. Especially if it was clamoured for by their operatives, as you found in the particular instance with your own people who were anxious to leave off at six o'clock?—Yes.

Chairman.

2158. Were you present at the meeting of the Council of the London Chamber of Commerce when a resolution was passed unanimously in favour of the Bill?—I am extremely sorry that I was not able to be there.

2159. You have heard of it?—I know that it was unanimously passed; or I think there was one objector. That is what I heard; that in a large meeting there was one who did not agree. I would be very glad if Sir Albert Rollit could explain to us why he objects. I know him quite well, but I really do not know what his arguments may be. I have not met him on this matter, but I will.

Mr. *Willett.*

2160. That was the Council meeting?—That was the Council meeting. I will see him on the matter.

Chairman.

2161. He did not persevere with his opposition?—He found himself in a minority of one.

2162. Which is always an uncomfortable position to be in?—He took the usual course, and said no more.

2163. You were asked by Mr. Holt whether you thought that the effect of the Bill was likely to be nil if it were not acted upon by the large majority of the industrial organisations of this country?—Yes.

2164. I put it to you whether, if the Post Office and the banks and the railways agreed to carry out the provisions of the Bill wholeheartedly, you think that that would practically mean absolute success for the Bill?—Absolute. I think that 95 per cent. of employers of labour would immediately follow, and the remaining five per cent. would be cranks who always object to any change and to taking any trouble.

2165. Would you tell the Committee whether you have any reason to assume that it would materially interfere with the arrangements of the Post Office?—My opinion would be that the Bill would not interfere. I think that the Post Office people would very soon settle down to the altered circumstances, and would not find it difficult.

2166. You do not know of any other organisation beyond those that I have mentioned whose action would be a determining factor either for or against the Bill?—No, I do not.

2167. We are very grateful to you.

(*The Witness withdrew.*)

Mr. LEON G. HAROLD LEE called in; and Examined.

Chairman.

2168. Your occupation is that of a schoolmaster?—Yes.

2169. You are the headmaster of the Raunds Wesleyan School, an Associate of the College of Preceptors, a Fellow of the Royal Meteorological Society, and a member of the British Astronomical Association?—Yes.

2170. In what particular aspect of economic life have you considered the provisions of the Bill?—From the aspect of public elementary school life. We begin our morning session at nine o'clock, and terminate it at noon. Then, we begin again in the afternoon from 1.30 to 1.45, and terminate at four o'clock. The result is that in the summer months the temperature of the rooms becomes very high—sometimes between 70 and 80 degrees. It was 80 degrees yesterday. They are well-ventilated class-rooms. During the afternoon's work, especially from 2.30 onward to four o'clock, the temperature in the summer months is most unsatisfactory from the point of view of the children. They are listless and inattentive, and the art work is badly done through perspiration. If we were to begin an

Chairman—continued.

hour and 20 minutes earlier, we should begin the morning session at 7.40, and finish it at 10.40, The afternoon session would then begin at 12.10. We should terminate school for the day at 2.40. and the result would be that we should avoid working during the worst hours of the day, which would be given to the children for extra play.

2171. What are the difficulties in the way of any school adopting those hours at certain times of the year, to suit their general convenience?—I do not see any difficulties whatever.

2172. Except use, wont and custom?—I think that they would soon get into it.

2173. Do I understand that yours is a non-provided school, or is it a Council school?—It is a non-provided school.

2174. There would be nothing to prevent you altering the hours to suit the convenience of the children now without legislation?—No, I do not think there would be; but I do not think the children would come.

2175. They would not come?—I think not, because it would upset the family arrangements.

2176. Mainly caused, I suppose, by the fact of

Chairman—continued.

of getting up at the ordinary hours?—Certainly.

2177. Whereas, if this Bill were in operation, it would tend to make people get up earlier and consequently children would come earlier to school?—Yes.

2178. What other material advantages would accrue to school life generally from the Bill, do you think? We have heard of great advantages in the way of saving eye-sight from the fact that there would be less artificial light used. Does that apply to schools of the description of yours?—No, it does not, because all our work is done in the daylight, even under the present circumstances, so that it would make no difference there. Then, again, the effectiveness of the school work is undoubtedly in proportion to the amount of time that the children spend out of doors. For instance, if it is a wet day, and there is no recreation time, the work is always done worse, because the children have not had their run about outside, and I think that these extra hours that they could spend outside, instead of in bed, probably would result in better work.

2179. What is the average age of the children in your school?—13. There are very few beyond 13.

2180. Would you tell the Committee whether you have any particular choice as to the way of giving effect to the provisions of this Bill?—Do you mean with regard to the 20 minutes, or the hour?

2181. Yes?—Are the alternatives an hour and one hour and 20 minutes?

2182. That depends on people's points of view. Some people have recommended a whole hour as a permanent alteration, and others have recommended an whole hour as a six-monthly alteration?—I think that four 20 minutes would be better, certainly, than the hour. If we only take the hour, we shall lose 20 minutes. An hour does not seem a very great deal, but an hour and 20 minutes seems considerably longer. I do not see that there is much to choose between the four 20 minutes on the four Sundays, and putting the clock on once. As one of my lads said, it would bring Sunday tea nearer to dinner, and he preferred that. It would be an hour and 20 minutes earlier.

2183. He was a precocious youth?—He preferred that.

Mr. *Holt.*

2184. You said that your children get out of school at four o'clock?—Yes.

2185. In a summer evening there is enough out-door daylight left for them, is there not? They can play from four till half-past eight or eight o'clock, and that is about as much as they can do, is it not?—There is a certain amount of time to come out of that for work.

2186. Preparation?—No, I do not mean preparation, but their home-work.

2187. You said that they would get extra hours which they could spend outside, instead of in bed?—Yes.

2188. You contemplate that the children would go to bed, not at the same nominal time, but at the same time in relation to the sun?—I think that they would have less time in bed.

Mr. *Holt*—continued.

2189. You think that they would?—Yes, I think so, because they are proverbially early wakers. Children wake early, and they are very often not allowed to get up, because their elders are not up.

2190. Do you think that it would be a good thing for small children to have less time in bed?—Not for the very smallest children, but it would for children of from 10 years of age onwards.

2191. Do you think that they spend too much time in bed?—I am inclined to think that they do.

2192. I have rather a curious opinion. Your young friend was mistaken, was he not, in thinking that he would get his tea sooner after his dinner? The alteration made in the small hours of the morning will not affect it?—I thought it was two o'clock in the afternoon.

2193. No, it is two o'clock in the morning?—I was under a wrong impression.

Mr. *Richards.*

2194. You say that you come from Raunds?—Yes.

2195. You are not governed much by factory regulations there, are you? Is there not a fair amount of out-door work?—There is much less than there used to be.

2196. You think that the children would benefit, and that you would benefit too, if you and they could do your work in the cool of the morning?—I am certain of that; I am quite certain that it will benefit the teachers very considerably.

2197. I suppose that you think that if this Bill became law, it might encourage the parents and the factories to adopt it, and thereby give the schools an opportunity of working in conformity with the new arrangement?—Yes.

2198. Did it ever occur to you what the effect would be if this Bill included four periods of 30 minutes, instead of four of 20 minutes?—I think that that would be a little too much for the month of May, and for the month of August. It would be very well for June and July, I think. For those two months it would be better still.

2199. The lift would be too much, you think. Now you say that the heat of the schoolroom is sometimes 80 degrees?—Between 70 and 80.

2200. That is a terrible state for children to work in?—It is very bad, indeed.

2201. What would be the cause of that? Is it the structure? Is the roof merely an ordinary slate roof?—Yes.

2202. One single roof?—Yes, one roof. All the windows face south. The school is lighted entirely from the south side.

2203. Is the structure built purposely for a school?—Yes, but it is nearly 50 years old.

2204. You believe that children work better if they have recreation at mid-day—in the middle of the lessons, as it were?—Undoubtedly they do. The effect can always be felt if the recreation, from some cause or other, is stopped. I refer to the quarter of an hour's recreation. Even the quarter of an hour tells.

2205. I suppose that you probably would agree that if children got up earlier they would want to go to bed earlier?—Yes.

Mr. *Richards*—continued.

2206. There are no frauds among children? They act very naturally?—Sometimes.

2207. I am speaking of the bulk of them. When they are tired, they generally want to go to sleep. There is not much attempt to sit up and watch the clock?—No. I think that they would rather go to sleep when they felt sleepy.

2208. I daresay that you have had experience of their falling asleep in school sometimes?—In the infants' department.

Chairman.

2209. Do you think that the effect of this Bill would be in any appreciable degree to lessen the number of hours of sleep enjoyed by children? You just said, in reply to Mr. Holt, that you thought that they would have less opportunities of sleep, or remaining in bed?—Yes. I think

Chairman—continued.

that it would slightly. I think that children from 10 years of age would spend less time in their bedrooms.

2210. They would spend less time in their bedrooms, but they would not necessarily have less sleep?—No.

2211. So that, on a general consideration of all the aspects of the Bill, you think, from the point of view of school life and the 7,000,000 children in elementary schools in the Kingdom, that the benefits of the Bill would be unquestionably great?—I do.

2212. You have no objections to offer as regards the plan proposed to effect the end of the Bill?—No, I can see none.

(*The Witness withdrew.*)

Mr. William Willett, re-called.

Witness.

2213. I have now, Sir Edward, to ask you to be kind enough to take notice of a few statements which I have here by gentlemen who will come as witnesses if you wish them to. I submit that it would save the time of the Committee if I were to read what they have to say, or, at any rate, the salient points of their statements?

Chairman.

2214. Certainly?—The first statement is by Mr. Howard Williams, son of the late Sir George Williams, the founder of the Young Men's Christian Association, and a partner in the firm of Hitchcock, Williams and Company, St. Paul's Churchyard. He is president of a dozen athletic, football, cricket and rowing clubs, and Chairman of the British and Colonial Union of the Young Men's Christian Association. He says: "My firm employs upwards of a thousand assistants. A considerable amount of work, particularly in the warehouses, has to be done by artificial light as evening approaches. I have ascertained the amount of artificial light consumed during the summer months, and I find by calculation that if the working hours had been adjusted last year, as is proposed by this Bill, my firm would have saved in the period during which the altered hours would have been in operation a sum of £347. In addition to this there has to be taken into account the saving of the eyesight of a great portion of my staff, who have on dull days to work by the aid of artificial light. While such artificial light we use is electricity, I can speak from personal knowledge that in the case of many warehouses the staff has to work by the aid of gas and other illuminants, which have a very bad effect upon the atmosphere, and from the point of view of health, therefore, the change in the hours would in their case be most desirable, and tend to the improvement of their health. The Young Men's Christian Association, of which I am the Chairman of the British and Colonial Union, has a membership of over 700,000, scattered over numerous districts at home and abroad. The additional hours which would be at the disposal of these young men in

Chairman—continued.

the Association in Great Britain for the purpose of outdoor recreation would be very much appreciated by them, especially in connection with the numerous clubs which are run in connection with the various branches of the Association. Any arrangement that will bring more light and sunshine into young lives must be beneficial." I think that that might be put on the minutes, if you will allow it. The next statement which I have to put before you is from the Musical Adviser of the London County Council, Mr. Carl Armbruster, of No. 155, Holland Road, W. I have been to a lot of trouble to get these statements. I want to save the time of the Committee.

2215. It is perfectly legitimate to read them?—Mr. Armbruster says: "The London County Council engages about 90 bands each season to give performances in the various parks and open spaces of London. The number of these performances is between 1,200 and 1,300, and they are given upon about 60 bandstands. The bands play for three hours at each evening performance. starting at the commencement of the season, namely, in the middle of May, at five o'clock, and finishing at eight. These times gradually lengthen out week by week, until by midsummer day the bands commence at 5.45 and continue until 8.45. The hours are, of course, regulated by the available daylight, as only upon half a dozen stands is it possible to have artificial light. After midsummer the time of commencing and finishing the performances gets earlier week by week, until the end of the season. Towards the latter end of August the performances commence at 4.15 and finish at 7.15. Many of the performances, especially those at the beginning and end of the season, are to a very great extent wasted, because for the reason above stated they have to take place at such an early hour of the evening, and, in fact, at some of the performances the audience consists mainly of women, children and cripples, the time of the band playing being such as to make it impossible for the working-men to get to the bandstands. The Council spends £12,000 per annum on its band performances, which are presented

Chairman—continued.

sented to the public free. There is no question that they afford delight and recreation to many thousands, the Council's only regret being that it is not able to extend them. I am satisfied that if the Daylight Saving Bill becomes law the result will be that the attendance of the public to hear the bands will be almost doubled, and thus more value will be obtained for the money spent by the Council in providing the music, and while people are listening to music it keeps them from public-houses and similar places where they would otherwise spend their leisure hours." He goes on to say that he would rather have three changes of half an hour each on the first, third and fifth Sundays in April, or the first and third in April and the first in May, than four changes of 20 minutes.

2216. What other statements are there?—Sir Arthur Conan Doyle writes as an author and medical man.

Mr. *Pearce.*

2217. Will you read his statement, please?—"It seems to me certain that very great happiness and health would be conferred by such an arrangement. The improvement of the national physique which would arise from so many hours in each year being spent out of doors, which are at present spent in artificial light and close atmospheres, would, I think, justify the change. It seems to me very strange that in the course of the world's history so obvious an improvement should never have been adopted." Then Mr. Alexander Farquharson, of Broadlands Road, Highgate, Timber Importer, President of the Timber Trades Federation of the United Kingdom, says: "During the 40 years I have been in the timber trade in London, owing to the nature of my business I have not been able to leave my office, as a rule, before 6.30 p.m., with the exception of Saturday, when I have the customary half holiday. I arrive at my home in Highgate about 7.20 p.m. There is no time left after I take my dinner for open air recreation in the daylight, and though my house is within five minutes' walk of a golf course, I am never on it of an afternoon, save on Saturday. To the average man, physical exercise, preferably in the open air, is essential, if he is to keep his body fit and his nerves under control, and although I am opposed in principle to Sunday games of any kind, I can quite understand and sympathise with men situate as I am, who are driven to play on Sunday. I sometimes try getting out before breakfast, but the household arrangements do not adapt themselves to this practice, besides which it has the further disadvantage of tiring one's self at the commencement of the day, when a business man needs to be freshest and strongest. Were Mr. Willett's scheme to pass and the time given after the day's work for an hour or more's exercise in the daylight, I would consider it of inestimable advantage from the point of view of health to all business men with long hours in their offices."

Chairman.

2218. Is there anything else that you wish to bring before the Committee?—I have one from Mr. Edwin Turner Cottingham, of Thrapston,

Chairman—continued.

Clock and Instrument Maker. I do not know whether you have heard enough about clocks?

2219. Yes, I think so. We have heard three experts upon clocks?—Then I have a statement from the Rev. William Goodman Edwards Rees, Vice-Chairman of the Salford Higher Education Committee, a Governor of the Royal Technical Institute, Vice-Chairman of the Manchester and Salford Christian Social Union, Chairman of the Salford Schools Canteen Committee, Member of the Executive of the Manchester and Salford Citizens' Association, and of the Sanitary Society, Vice-President of the National League for Physical Improvement, Witness before the Committee on Physical Deterioration, Secretary of the 1908 Church Congress, writer of certain articles on Social Questions and questions affecting the health and well-being of the people.

2220. I suppose that we may take it that he is generally in favour of the Bill?—Yes. He is generally in favour of the Bill.

2221. You need not take the trouble to read it?—Thank you.

Mr. *Pearce.*

2222. Have you any from objectors?—No, I keep asking for them, but I cannot get any. I thought of putting an advertisement in the papers.

Mr. *Richards.*

2223. Yes, you should advertise for some?—I think that that is what I had better do. Then I have a statement from the Reverend E. de M. Rudolf, who is the Secretary and Founder of the Church of England Incorporated Society for Providing Homes for Waifs and Strays. That is a large society. He says: "I am satisfied that if the proposals contained in the Daylight Saving Bill were to come into operation they would be of very great benefit to the health and happiness of these children, as it would place at our disposal so many extra hours of daylight and sunlight wherein the children might enjoy recreation in the open air," and so on. He is generally in favour of the Bill. Those are all. Then I would like to inform you, Sir Edward, that since your meeting on Thursday last I have received from the Town Clerk of Wakefield a letter informing me that the Council have passed a resolution in favour of the Bill, and stating that the Borough Member should be asked to support the Bill when it is again brought before the House of Commons. The Urban District Council of Leyton have also passed a resolution to the same effect. I have also received a letter from the Belfast Wholesale Merchants and Manufacturers' Association, Limited, stating that at a meeting of the General Committee of the Association they decided to support the Bill, and to ask each of their four sitting members to give their best support to it also. I have also a formal notification from the Town Clerk of Aldeburgh-on-Sea, in Suffolk, informing me that the Corporation there have passed a resolution in favour of the Bill.

Mr. *Holt.*

2224. Have they not a golf links there, which is very pleasant and interesting?—Yes, there are golf links there. Then I have a letter from the St. Anne's-on-the-Sea Tradesmen's Association. "The

Daylight

Mr. *Holt*—continued.

Daylight Bill with which you are associated was under discussion by the Committee of this Association, and a resolution was adopted approving of the measure for securing length of summer days, and wishing you success in your efforts. It was realised that the trades of the country, particularly the shopkeepers, would derive considerable benefit by the proposed change." We have heard several times that shopkeepers would not benefit by the alteration.

2225. This is a case of golf links again, is it not?—This is from a Tradesmen's Association, and they say that they realise that shopkeepers would derive considerable benefit from the change. These have all come since last Thursday. I have a letter from the Minehead Miniature Rifle Club, stating that their Committee passed a resolution in favour of the Bill, and that a copy of it has been sent to the member for the division, the Right Honourable Sir Alexander Acland-Hood. The resolution is: "That this Committee approve of and give its support to the Daylight Saving Bill, and that the Right Honourable Sir Alexander Acland-Hood, Bart., M.P., be asked to give it his support." I am being inundated with these resolutions. I have a letter from the Caterham and District Rifle Club, stating that the Committee are in favour of the Bill. The letter continues: "I may mention that the Club consists of about 300 members, and that the Committee includes a J.P., a C.C., and several officers in the Regulars, or 'Terriers.'" I have a letter from the Motor Union of Great Britain and Ireland. They have sent me a copy of what they sent to you, Sir. I do not know if anybody knows who the Harlesden 18 are? The last letter is from a gentleman who represents the Harlesden 18. They have passed a resolution in favour of the Bill.

2226. I confess that there is only one of these gentlemen whom I should like to see, and that is the gentleman who is connected with the Waifs and Strays' Society—Mr. Rudolf—who advances what I think is an astounding proposition, that it would be a good thing to get the small children up earlier. I suppose that they are small children?—There are 4,000, he says.

(*The Witness withdrew.*)

Tuesday, 16th June, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Pirie.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. EDWARD SATTERTHWAITE again called in; and Examined.

Chairman.

2227. You come to-day in your representative capacity, in order to give evidence on behalf of the Stock Exchange of London?—Yes, Sir.

2228. Now will you develop your arguments as to the view taken by the Committee of the Stock Exchange on the facts and the effects likely to accrue from the passage of this Bill?—I think they are fairly fully laid out in this memorandum, a copy of which has been sent to you. This memorandum has been prepared by the Committee for General Purposes of the Stock Exchange. The points on which your Committee, Sir, desired information, are these:—1. The effect of the Bill on the Stock Exchange. 2. Especially on the Western Markets. 3. Relative volume of Eastern and Western dealings, and of persons employed therein, also of Western to whole.

Chairman—continued.

4. Possibility of adjustment of Stock Exchange hours to the new requirements. 5. Considerations which limit and regulate Stock Exchange hours. 6. Possibility of earlier hours for clerks and other employees. 7. The number of cables passing between New York and London. 8. Conclusion. On the first of these points the General Purposes Committee of the Stock Exchange say: "This Bill, if passed, would inevitably create a dislocation of Stock Exchange business in the chief business centre of the world. The London Market is pre-eminent among the Stock Exchanges of the United Kingdom, but in all probability the conditions of this Bill would also adversely affect the business of the Provincial Exchanges. It is proposed, however, to consider the question from a London standpoint only. From its geographical

Chairman—continued.

geographical position, aided by other causes, London is the Clearing House of the world in Stock Exchange matters. Business, both for investment and speculation, centres in London from the Continent of Europe, from the United States and Canada, from South Africa, and to a lesser degree from India, Australia, and Japan. Investors and speculators in these countries find it convenient to send the bulk of their orders to London, where, owing to its central position, they find a ready market. Speaking generally, it may be said that the bulk of international business is done in three groups of securities—Foreign Government Securities, American Railway Securities, and Mining Securities. The American and Colonial operator deals almost exclusively in the securities of his own country, while British and Continental operators deal in all, and there is a free market in all in London. Placed as it is, London attracts business in American and South African Securities from all parts of the Continent, and in American Securities, to a large extent, from America itself. The provisions of this Bill would, twice or more in each year, cause an alteration of British time, which would not be current in these countries, and to which their people would not be accustomed. This would inevitably cause irritation, and would tend to business being done direct with the country of origin of the Stock to be dealt in, where such disturbing conditions did not exist and consequently business would drift away from London." Then the second point. The effect of the Bill "Especially on the Western Markets": "As far as the Western Markets are concerned, the principal centre for Stock Exchange business is New York. The hours of business there are from 10 to 3, and there being five hours difference of time, the London Market, which closes in the Stock Exchange at 4 p.m., is open for one hour (3 to 4 p.m.) during the New York Session (10 to 11 a.m.) During this hour enormous transactions take place, which are continued in the street after the Stock Exchange is closed. As shown in paragraph 7, to which attention is particularly directed, this forms a most important part of the business of the Stock Exchange, and the Bill would throw it out of gear during six months of the year, in five of which the two markets would not be open simultaneously. In times of crisis, such as occured last Autumn, it would be of urgent importance that the two Exchanges should be simultaneously open for at least some portion of the day." As to (3), "Relative volume of Eastern and Western dealings, and of persons employed therein, also of Western to whole": "The Committee for General Purposes regret that it is impossible to estimate the relative proportion of Eastern to Western business, nor of the latter to the whole of business of the Stock Exchange, but it may safely be said that the amount of British capital invested in Western Securities is enormous, and any alteration adversely affecting international dealings would impair the freedom of markets, and would thus be most detrimental, not only to those engaged in Stock Exchange business, but also to those members of the public who have investments or dealings in such securities." As to "(4) Possibility of adjustment of Stock

Chairman—continued.

Exchange hours to the new requirements," and "(5) Considerations which limit and regulate Stock Exchange hours": "The difficulty might to a certain extent be obviated by keeping the Stock Exchange open later during the summer months, but this would be extremely inconvenient, as it would practically compel the markets in other securities to remain open, and would not allow time for members to attend to their correspondence, and prepare contract notes for the day's business before the departure of the mails. It is unlikely that the New York Stock Exchange would be able to adapt itself to London hours by commencing earlier; it already opens at the early hour of 10 a.m., and during the summer months practically the whole business population lives at some distance out of New York, coming in by steamer and train, and it must be remembered that, owing to difference of latitude, the summer day in New York is considerably shorter than in London." Then as to "(6) Possibility of earlier hours for clerks and other employees": "The effect of the proposal would seem to be that a large proportion of members and their employees would have to be present one hour and 20 minutes earlier and, in order to deal with the American business, to stay just as late as they do at present." "(7) The number of cables passing between New York and London": "From enquiries at the office of the Anglo-American Telegraph Company, which with the Commercial Cable Company has direct access to the Stock Exchange, the Committee learn that the average number of cables received at that office, during the hours the New York Stock Exchange is open, is 1,000, of which about half are sent or received between three and four o'clock, messages and their replies being at times received in a very short space of time, viz., one to three minutes. The number naturally varies with the activity of business, as the enclosed table will show.

Numbers of messages received and sent by the Anglo-American Telegraph Company:—

(a)

Three days of last week. Markets fairly active:

	Between 3 and 4.	4 to 8.
May 25th	967	1202
„ 27th	727	968
„ 28th	543	627

Note.—During this period the Commercial Cable Company's cables were interrupted.

(b)

First week in April. Very little doing:

April 1st	420	417
„ 2nd	370	235
„ 3rd	287	271
„ 6th	393	266
„ 8th	285	256
„ 9th	359	307
„ 10th	407	485

Note.—These are exclusive of messages sent through the Commercial Cable Company.

(8) In conclusion, the Committee desire to point out that, while they think the scheme might in some cases be of personal advantage to individuals, both members and clerks, they are of opinion that

Chairman—continued.

that it would in very many instances cause longer hours to both, and that its adoption would be detrimental to the business interests of the Institution.—R. W. Inglis, Chairman, Committee Room, The Stock Exchange. 9th June, 1908."

2229. You say that this Bill would inevitably create a dislocation in the Stock Exchange business in the chief business centre of the world. In what way? Will you kindly develop your arguments in support of that contention?—In the latter part of the paragraph you will see. "From its geographical position, aided by other causes, London is the Clearing House of the world in Stock Exchange matters." Business centres here from various parts of the world, and if that were altered in any way, it would not be to the same extent the "Clearing House."

2230. Surely the main principle of the Bill is to increase the hours of work during daylight, and consequently so far from restricting the volume of business operations with London, it ought to have the effect of enlarging and multiplying it, I should have thought?—That is not the view of my Committee, Sir.

2231. Could you tell the Committee whether the Stock Exchange have any particular markets in view when they make that decided statement?—Oh, undoubtedly the Western Markets and principally the New York Stock Exchange, with which such a very important business is done.

2232. May we take it that there will be an advantage as regards operations with the Eastern markets and the Far Eastern Markets?—Not to the same extent.

2233. Nothing to counterbalance the extreme disadvantages which you foresee are likely to accrue from this Bill?—Nothing to counterbalance. May I just discriminate for one moment between Eastern and Far Eastern markets?

2234. Yes?—I think the Far Eastern Markets would be so far out of time that they would hardly come in at all. The Eastern Markets, including South Africa, would be to a certain extent helped by the Bill.

2235. But not the Far Eastern Markets?—The Far Eastern Markets seem to me to be too far to the east.

2236. Do you consider that that market would be wholly excluded from the scope of business operations on the Stock Exchange for one day?—Anything like Australia.

2237. A place like Shanghai, for instance?—Shanghai—it would be too far to the east.

2238. You don't think there would be any telegrams reach you in time for business hours from those places?—I have not gone into that very carefully. What is the difference of time of Shanghai?

2239. Something like seven hours, is it not—between seven and eight hours?—Yes, I think it is about seven hours.

Mr. *Holt.*

2240. I should think it is more. I think it is eight or nine?—I think I have got it here somewhere.

Chairman.

2241. To all intents and purposes, whether this Bill passes or not, the proposed alteration, I may take it, would not facilitate business with the Far Eastern markets?—No, not with the Far Eastern markets.

2242. Have you anything else to say from the point of view of local operations?—I think I should like to draw attention to the last clause of paragraph 1 of the Memorandum. In concluding that part of the case our Committee say, "Placed as it is, London attracts business in American and South African Securities from all parts of the Continent, and in American Securities to a large extent from America itself. The provisions of this Bill would, twice or more in each year cause an alteration of British time, which would not be current in these countries, and to which their people would not be accustomed. This would inevitably cause irritation, and would tend to business being done direct with the country of origin of the Stock to be dealt in, where such disturbing conditions did not exist, and consequently business would drift away from London."

2243. I take it that that objection merely lies to the two alterations contemplated by the Bill—the hours. Suppose we had an alteration in the lump; suppose we altered the clocks and watches one hour permanently, would the objections equally apply?—All through the year?

2244. All through the year?—Adopt, so to speak, something in the nature of mid-European time?

2245. Yes?—That would not to the same extent affect the objections under Clause 1, but it would be equally objectionable or nearly as objectionable from the point of view of Western markets.

2246. Precisely. Has your Committee considered the question of the method of alteration proposed in the Bill?—No, Sir, they have not.

2247. They have no views to offer as to whether it would be advisable to change twice a year or make a permanent change?—No, Sir.

Mr. *Pirie.*

2248. The importance of London as a business centre and the convenience of the present hours at which business is done in London is surely a mere matter of custom, is it not?—I think not, Sir. The brokers receive their orders from the Continent—Vienna and Berlin—early in the day, and are able to execute them here, and if they require to be executed in New York they are then passed on to New York.

2249. Do you mean to say the importance of London as a Stock Exchange business centre is largely due to its position?—Yes—not altogether, of course, but largely. There are a number of other things come in, of course.

2250. Would it not be the case that what one market would lose in a change of this sort the other would gain?—Yes, to a certain extent.

2251. I see in your Memorandum you say that business is "continued in the street after the Stock Exchange is closed"?—Yes.

2252. That is tantamount to an admission that business would be done if the Stock Exchange did not remain open?—But it is an exceedingly inconvenient process of doing business.

2253. That is a matter that is so exceedingly inconvenient

Mr. *Pirie*—continued.

inconvenient to the Stock Exchange that it could not easily be remedied by starting a little earlier and continuing a little later?—No; the inconvenience arises not only from inconvenience to the public in having the street blocked up, but also from the inconvenience of post time.

2254. Of course the numbers affected adversely by the operation of this Bill with regard to the Stock Exchange are infinitesimally small when compared with the numbers that would be affected favourably if this Bill were brought into operation. No doubt you have got to make yourself acquainted with the condition of things existing before and see the number of working men affected by this Bill?—That is for you to decide, Sir.

2255. You are aware of the unanimous tendency up to now?—I am not, Sir.

2256. Might I ask if this Memorandum, drawn up by the General Purposes Committee of the Stock Exchange, represents the interests of the clerks or merely of the principals?—It represents the interests of "business," and "business" involves the prosperity of clerks and principals. The final clause, I think, of paragraph 8 of the Memorandum more or less sums up the view of the Committee: "In conclusion the Committee desire to point out that while they think the scheme might in some cases be of personal advantage to individuals, both members and clerks, they are of opinion that it would in very many instances cause longer hours to both, and that its adoption would be detrimental to the business interests of the Institution."

Mr. *Holt*.

2257. Of course the Stock Exchange transactions with New York vastly exceed the Stock Exchange transactions with Australia or Shanghai?—Yes.

2258. There is no comparison between the amount of business?—None.

2259. It is very clearly set forth *here* that you consider it of the greatest possible advantage that there should be an hour a day at which the London and the New York Stock Exchanges are open simultaneously?—The greatest possible.

2260. If, for the sake of argument, the London Exchange was not open at the same time as the New York, but that the Paris Exchange was, would not that have a powerful effect in the way of diverting business from London to Paris?—The Paris Bourse, I think, would not be open at the same time as New York, and it is not open now.

2261. And it is not open now at the same time?—Not at the same time as New York; it closes before New York opens.

2262. When does the Paris Exchange close?—It closes at three o'clock.

2263. Then that may partly account for the very large business that the London Exchange does?—Undoubtedly it does.

2264. Your view would be that if you were deprived of the advantage of being open for an hour a day at the same time as New York, you would lose a lot of that business?—I consider so.

2265. Therefore the probable effect would be that a good many of the clerks employed on the Stock Exchange would lose their situations?—That is quite possible. May I for one moment, in

Mr. *Holt*—continued.

answer to your question about the time of closing, say:—The Paris Bourse, I think, is open from twelve to three during ten months in the year, but in the summer I believe it is open only from twelve to two.

2266. The Paris Exchange is not, under any circumstances, open anything like as long as the London Stock Exchange?—No.

2267. When does the London Exchange open?—The doors are open at half-past nine, but business cannot be recorded until a quarter to 11, and the markets practically open according to the state of business. If business is active, there are very often dealings at 10 o'clock or a quarter past 10, in less busy times at half-past 10 or a quarter to 11. The official hour for marking business is quarter to 11.

2268. Quite so; so that if it was thought to be generally an advantage to the Stock Exchange, there would be no difficulty whatever in putting it an hour earlier without any alteration of the clock—no difficulty in making your hours a quarter to 10 to 3—if you thought that was a benefit to you?—Well, I do not think our members would like it, because many of them live out in the country and we had a good deal of opposition when we made the small alteration from 11 o'clock to a quarter to 11 a few months ago.

Mr. *Pearce*.

2269. You have time enough now for the correspondence and contract notes which are referred to in clauses 4 and 5?—Yes, Sir.

2270. And a mere alteration elsewhere would not prevent your going on exactly as you do now, would it?—I do not quite grasp the question.

2271. An alteration elsewhere in the practice of business would not prevent your going on exactly as you do now up to the same natural time?—No, I do not think it would—an alteration elsewhere?

2272. Outside your market—outside the Stock Exchange?—An alteration of time, do you mean?

2273. No, I mean an alteration in the conduct of business?—I am afraid I do not quite grasp your meaning, Sir.

2274. What is there in the Bill now to prevent your keeping the same time as you do now, if this Bill passed?—Nothing.

2275. Then where does the harm come in?—Because in the first instance the New York and London Markets would not be open simultaneously under the proposed change.

2276. That is the rub. Did not you say too much when you said there was nothing in the Bill to affect it, because your argument on this is that there is something in the Bill which would affect it—which is right?—I should like, if I may, to have the question actually clear; I do not think I quite grasp your point. Would you mind repeating it, Sir?

2277. I am only anxious to get at the real state of affairs?—Certainly.

2278. I have no predilections or views either way as a promoter of the Bill. I only want to know what effect it is going to have?—I think it is clearly laid down in this memorandum

Mr. *Pearce*—continued.

that it is going to have a detrimental effect on the business of the Stock Exchange.

2279. You have already said there is nothing in the Bill to prevent your going on as you now do, exactly?—There is nothing to prevent it except that the business will be less efficiently done.

2280. Why?—And the London and the New York markets will not be open simultaneously.

2281. But why should the business be less efficiently done?—Because the markets are not open simultaneously.

2282. But you would keep your market open?—We hope we shall not have to keep the market open for an extra hour. That would mean extra hours for everybody.

2283. You would not have to keep your hours differently to what you do now; the hours would be named differently, that is all?—We should if we wanted to be open at the same time as the New York market was open—we should have to keep open an hour later.

2284. Later than you do now?—Later than we do now.

2285. I think you are quite mistaken there?—I think not.

2286. If you call "4 o'clock" "5 o'clock" what difference does it make to you?—It would not be open; you would have to keep open the extra hour.

2287. Then I think you have misconceived the situation?—I think not, Sir.

2288. One moment; you know that every market really keeps its own hours, irrespective of other business. For instance, Covent Garden market is carried on in the very early morning, as you know?—Yes.

2289. And you know, too, that Smithfield Market—the great wholesale meat market—is carried on quite irrespective of all other businesses?—Yes.

2290. So with the Fish Market?—Yes.

2291. And generally; there are markets which are kept open at their own times in the day, irrespective of other classes of the community?—Yes.

2292. Now if you wanted to do business with America you would find a way to do that business in what is nominally up to now the hour that you consider 5 o'clock?—It depends. Sometimes if business is active they sometimes stay later.

2293. You can keep those sometimes, whatever the hour is by the clock, surely?—Undoubtedly the members will stay as long as there is any business to do, whether they do it in the Stock Exchange or in the street. What I want to point out is this—that it is exceedingly inconvenient that the street business should be encouraged. The effect of this Bill would be to encourage it, and it is also extremely inconvenient for the purpose of catching the country post.

2294. Let me put it to you about "post time." You can do all your correspondence now, cannot you? You do your correspondence now without inconvenience?—Yes.

2295. We are not proposing that you should not continue to do so. Surely you could keep your present hours; you would not be obliged to make

Mr. *Pearce*.—continued.

any change. However, that we have already discussed?—We think it would be exceedingly inconvenient.

Chairman.

2296. Does not it seem odd to you that the Committee of the London Stock Exchange should take such a diametrically opposite view as to the probable effects of this Bill to that taken by the London Chamber of Commerce, Liverpool, Newport, Sheffield, and other centres?—I think possibly the interests of the London Chamber of Commerce—the people who compose it—are different to the interests of the Stock Exchange. We have written this memorandum in our own interest.

2297. Exactly?—And without consultation with the Chamber of Commerce.

2298. Precisely. I did not suggest that there had been any consultation—there could not have been, obviously. You take a diametrically opposite view to that which they take?—I do not know; perhaps the London Chamber of Commerce have not thought it out very deeply.

2299. Would not you think there was some direct connection between commerce and legitimate speculation?—Certainly.

2300. They are to a certain extent interdependent?—To a certain extent.

2301. Therefore to me it seems rather inexplicable that while one commercial—and the most important representative commercial—body take such a wholly favourable view of the Bill—and that body a body which, as you now say, is more or less dependent upon commercial transactions—should take a wholly different view?—It may be curious, but we have got to look at it from our own point of view.

2302. Now do you consider that it would be quite impossible for the London Stock Exchange to fit its time—its hours—to meet the general convenience of the public, assuming this Bill does respond to the general convenience of the public—do you think that would be an impossible thing?—I think the result would probably be that we should have to keep open an hour later in the evening to attain the same result that we do attain at the present time, and that would be a great inconvenience in lengthening the hours of the work of the members and of their employees.

2303. I do not quite see that. I think you rather misconceive the scope and range of this Bill. What you would have to do would be to meet an hour and twenty minutes earlier?—We should have to begin an hour and twenty minutes earlier as the clock stands at the present time. We should have to add that automatically in accordance with the law of the land, and if we wanted to do business with New York for a simultaneous hour, we should have to keep open an hour later.

2304. Will you allow me to to point out to you that if this Bill passes and you have the clocks put on an hour, you will leave the Stock Exchange at six according to the new time, instead of leaving at five, according to present time?—We leave at four now—that is to say, the Stock Exchange closes at four.

2305. You close at four now?—Yes.

Chairman—continued.

2306. If this Bill passes you will leave at five, which would be exactly the same time. It would simply give a different name to the hour. It would not be a minute longer than four?—What will ten o'clock, New York, be?

2307. Still the same, except that you would call it by the name of a different hour?—"Ten o'clock" New York would be "four o'clock" instead of three; ten o'clock there would be four o'clock here, which would be the hour at which we close.

2308. You close at four o'clock now?—We close at four o'clock now.

2309. You would then nominally close at five; you would not be later than now. Does not that strike you as being a reasonable forecast of the effect of the Bill?—I think it would mean that we should have to come an hour and twenty miuntes earlier.

2310. Yes, that is so?—And it will for our own purposes be almost necessary to keep the Stock Exchange open for an extra hour, in order to have a simultaneous time with New York, and that will give an hour or an hour and twenty minutes' extra work during that time.

Mr. *Pirie.*

2311. You stated in the course of your evidence that the Paris Exchange has various hours, according to the seasons of the year?—Yes, I can give you that exactly, I think, if you will allow me. Paris is usually open from 12 to 3; from 1st July to 30th September it is only open from 12 to 2.

2312. Then the varied hours have been found to act without undue inconvenience to the other commercial centres of the world; they are recognised as such, and known throughout the world, are they not?—Yes.

2313. Do not you think it likely that, in view of the importance of London as a Stock Exchange centre, if the London hours were to be altered other Stock Exchanges would would not find it in their interest also to more or less agree to the alteration, or go half-way to meet the alteration effected in London?—I think it is unlikely. The only Stock Exchange that would have to alter would be the New York Stock Exchange, and they already open at the early hour of ten o'clock, and as we have pointed out in our memorandum, during the summer months almost all the brokers live out of New York some distance. I think it would be impracticable to get the New York Stock Exchange to open earlier.

2314. If they were very anxious to do the business, or to continue to do the big business they now do with London, they would probably make some effort to meet the change?—I think you must ask some one from New York Stock Exchange what they think about that.

2315. Had your Committee, in framing this memorandum, in view the possibility of the inconvenience which they say would be caused, being an inconvenience which would largely disappear after the commencement of the change?—I do not think they went into that in the memorandum, but I can give you my own opinion about it if you wish it: the Committee did not consider that in any particular; they considered what would happen if the Bill came into force.

Mr. *Pirie*—continued.

Mr. *Holt.*

2316. I imagine that after these cable transactions with New York have been passed through, it is very often necessary to communicate with the clients—the stock-broker very often has to communicate with his client at once, has not he?—Yes.

2317. To ask him, perhaps, to increase his limit, or whatever it may be?—Yes.

2318. Therefore, if the Stock Exchange was required to be kept open to 5 o'clock, instead of 4 o'clock, it would also frequently be the case that the client would have to keep open to 5 o'clock, instead of 4 o'clock, would it not?—I think everybody who was interested in American securities would have their hours increased proportionately to those of the machine, which did the work.

Chairman.

2319. Then I think we may take it that the Stock Exchange would regard with considerable reluctance any encouragement to street trading after the official hours of closing?—Oh, yes, after the official hours of closing.

2320. And that constitutes one of the principal objections that they take to this Bill—one of the principal, besides the possible inconvenience to operations with the Western markets?—It is one of them.

2321. Do not you think you agree with me that if this Bill passes, the effect of it will be, not for members of the Stock Exchange to remain an hour later, but to start an hour earlier? They will have the extra hour's work at the beginning of the day, and not at the end of the day?—They would have it at the beginning of the day, and they would have to stay just as late as they do now at the end.

2322. Precisely; they would not stay a minute longer than they stay now; they will begin earlier?—They would begin an hour and twenty minutes earlier; that increases the hours of employers and employees by one hour and twenty minutes.

2323. That is just it. Now could you tell the Committee whether you have any views as to four alterations of twenty minutes each, so as to give an opportunity of 20 minutes' simultaneous opening, and for some mutually convenient re-adjustment of business with Western markets; have you considered that at all?—I do not think I quite grasp the question, Sir.

2324. That is to say, the Bill provides for an alteration in four steps of one hour and twenty minutes?—Yes.

2325. Let us put that aside and say that we should have an alteration of 20 minutes to start with in one hour. On the 2nd or 3rd of April you alter the clock 20 minutes; that would be the sum and substance of the whole of the alteration. In other words, instead of two or three, or four, making an hour and 20 minutes in all, you would alter it 20 minutes only?—That would be less objectionable, of course.

2326. That would be less objectionable; there would

Chairman—continued.

would be some objection, but not in the some degree?—20 minutes is quite a different thing to an hour and 20 minutes.

2327. Have you any idea what proportion of our Stock Exchange population—so to put it—is interested in American securities?—Practically all the brokers—who are about half—and a very large market of the dealers—half the Stock Exchange population generally are composed of brokers.

2328. I beg your pardon, I meant to say of the City population?—No, I cannot tell you that; our members are about 5,000, and about 2,300 clerks are admitted to the House, and there are a great many clerks who are not admitted to the House.

2329. But they would be an infinitesimal portion of the people engaged in business in the City, would they not?—Numerically, undoubtedly.

(*The Witness withdrew.*)

Sir ARTHUR CONAN DOYLE called in; and Examined.

Chairman.

2330. I suppose you have, in common with the general population, taken some interest in the provisions of this Bill?—Yes, Sir.

2331. Will you kindly oblige the Committee by developing your views as to the general scope of it?—I think, speaking generally, that it makes for the health and the happiness of the majority of the community. It seems to me that, especially in the case of children—to give them an hour's more daylight is a very important matter. In the morning it could not matter to them going to school an hour earlier, whereas to have an hour during the day in which they could play and get fresh air is of enormous importance, just at that time, to health. I think the next generation of Britishers would be the better for having had this extra hour in their childhood. I think the general standard—probably of health and of stature—would be perceptibly increased by it, and I think for the adult it is a splendid thing for every man in summer to get back to his home in time to look after his little garden, or whatever his particular hobby might be, after his day's work. I think it would make for the happiness of family life if the head of the family could take his wife and children for some little excursion on an ordinary day—whereas at present his time is so limited by the time he gets back home that it is hardly practicable. I think in a thousand ways it would act for good, and, as far as I can see, the objections to the contrary, however valid they may be, are still in a very great minority as compared with the points one might put forward of advantage.

2332. Have you considered the effect it would have upon the increased opportunities of enabling people to go in for musketry firing—volunteering?—I think that would be one of the many excellent by-products of the Bill—that there would be time for civilians to learn rifle shooting—which might perhaps get over some of our military difficulties.

2333. Could you tell the Committee your view as regards the method of altering the clock suggested by the Bill?—I read Mr. Willet's views with some care. I could not quite understand that there was any particular reason for four 20 minutes—no doubt he had something in his mind when he wrote it—no doubt there was some reason for it; but it struck me on simply reading it that a single alteration of an hour would be a round number, and cause less confusion and attain almost the same result.

2334. His view, of course, is on record; that is, that where people forget to make the necessary adjustment, the mistake of an hour would be a far more serious matter than a mistake of 20 minutes—that there is no magic in four alterations of the clock—or practically eight alterations—in fact, that is one of the points about which considerable difference of opinion has been elicited from witnesses who had come to give evidence before us; so that we might take it that your view is that an alteration of one hour—an alteration all at once—would be a far more desirable thing than a gradual alteration?—I speak with no authority about this, but it struck me on reading it; it seems simpler.

2335. On the face of it, it would seem obviously so?—Obviously simpler, I think.

2336. Could you say whether that alteration of an hour should be a permanent one, or should be gone back upon in the autumn?—It struck me that when the time came for putting the clock right again there would be very general dissatisfaction. Everybody would have fitted in by that time with the new arrangement, and they would not at all like to go back to the old system, which would have given them less daylight for 10 months in the year, and under the new system I should imagine one would have more daylight than under the old.

2337. It has been suggested that if you have this hour alteration permanent you would, to a great extent, neutralise the advantages which would be gained during the summer months from the operation of the Bill, that in some instances people would have got so used to early rising and going to bed late that a good deal of the work might be performed by artificial light, instead of by daylight. As far as we have dealt with the subject, have you any views to offer about that?—I never thought of that side of the question really—it is quite new to me.

2338. I suppose you have travelled a good deal?—Yes, I have travelled a good deal in my life.

2339. So that the minor inconveniences resulting from more or less frequent alteration of the clock do not strike you as being worthy of consideration?—Well, I have travelled in the Arctic seas, where there was six months' daylight without any dark at all—that is the other extreme.

2340. Have

Chairman—continued.

2340. Have you travelled throughout the length and breadth of the American Continent?—Yes, I have travelled in America.

2341. North America?—Yes.

2342. There, three different standard times exist?—Yes, quite so.

2343. You have not heard that that causes any inconvenience to anybody, have you?—No, I do not think so—one takes it as a matter of course.

Mr. *Pearce.*

2344. Assuming that the "hour" change was made, have you thought what particular day would be the best upon which to make it, in the spring?—It struck me that it ought to be some very well marked day, either the first of the month or the first Sunday in the month—possibly the first Sunday in March—that that would be the best.

2345. Let us examine what that means for a moment. The object of this Bill is to use more of the daylight than is at present used?—Yes.

2346. The latter end of March we get the equinoxes?—Yes, the latter end of March.

2347. In the East and all over the world, if you alter the hour by the equinox, you take the morning to begin work and work into the darkness, is that so?—I see. I really never thought the date out with any care.

2348. Suppose I put it to you that railway companies and other institutions—other services—thought that the latter end of April, or the last Sunday in April, was the best day for the change of one hour, would you be disposed to agree with that?—I think if you could conciliate opposition it would be worth while doing it.

2349. The only object is to secure the use of more daylight?—Exactly.

2350. Therefore, there would be no use altering our present time practice in the winter months?—No.

2351. In fact that would be a detriment to the purpose if we took and worked into times of darkness, so that that suggests, does it not, that we should revert to that "hour" at some time in the course of the autumn?—Yes.

2352. Have you thought when the best time in the autumn would be—may I put it to you, for instance, the first Sunday in September?—I suppose if one got six months of the improved time it would be as much as one could hope for.

2353. Would not the increased daylight, between the last Sunday of April and the first Sunday in September, be as much as we could make fair use of?—That would only give 4½ months, would it not?

2354. You would like to have more?—I should like to have six months at least—I think that would be better.

2355. Just as a mere matter of curiosity, how did you regulate your work in the Arctic regions in the six months of daylight?—Occasionally we turned day into night deliberately—we occasionally had breakfast at supper time, and inverted the whole thing—the night in some way was pleasanter than the day—the light was more mellow.

Mr. *Pearce*—continued.

2356. In spite of the daylight, then, you practically kept clock time?—We kept clock time undoubtedly.

2357. Both for your work and other work?—Yes, undoubtedly.

Mr. *Holt.*

2358. I gather from what you originally said your first idea was that it would be a good thing to adopt mid-European time—that is, permanently make our clocks an hour earlier?—I suppose mid-European time would just about make the difference of one hour.

2359. That is so?—I did not commit myself to "permanently" because I really had not thought it out very carefully; my idea was that something between six and eight months would be practical; I think that would carry the clock over well into artificial light.

2360. You did, I think, rather suggest this: that when people had enjoyed two or three months of this altered clock they would be so pleased that they would never let you alter it back again?—I think they would want another month or two. I do not know about "permanency."

2361. The great advantage that you estimate would be obtained from this was, as you suggested, that children would get more daylight, and that that would improve the physical stature of the nation; that is what you said?—That was one point.

2362. What do you think would be the effect upon small children three or four years of age? Do not you think it is probable the effect would be to postpone their bed-time in the case of the working classes, where there is only the father and mother to look after them?—I hope not; I do not think one need fear that.

2363. If the father and mother are going to enjoy with the other children this additional daylight and going to stay out of doors and disport themselves, is not it probable that the very small children would be kept out of bed an undue length of time?—Well, after all, it is only an hour, is it not? I do not think it would be any very serious detriment to them.

2364. You do not think it would do them the smallest harm?—Even presuming that in a certain number of cases it occurred, I should not think an hour's shortage of sleep in the case of a little child would do it any great harm; probably the child would make it up in the morning or during the day.

2365. This time of the year in the North of England you would not say it was dark before half-past nine or 10 o'clock, would you?—No, I suppose about half-past nine at present.

2366. Is not that long enough for most people?—We are just at Midsummer at the present moment, and, of course, the argument lies just at present, but it makes a great deal of difference six weeks before or six weeks after Midsummer.

2367. Yes, that is the time it really makes the difference, in May and August?—Yes, that is so.

(*The Witness withdrew.*)

Mr. P. E. J. HEMELRYK called in; and Examined.

Chairman.

2368. You represent the firm of Hornby, Hemelryk and Company?—Yes, Sir.

2369. You are a Justice of the Peace and Consul for Japan?—Yes.

2370. And you were a Vice-President of the Liverpool Chamber of Commerce?—I was, Sir.

2371. And formerly Chairman of the Liverpool School of Commerce?—I was.

2372. You are also the senior partner of Hornby, Hemelryk and Company, Cotton Brokers, at Liverpool?—I am.

2373. In the course of your very important business have you had occasion to require any changes in the hour of work between Liverpool and America?—Not between Liverpool and America.

2374. With what countries is your business chiefly concerned?—My principal business lies east of Liverpool, with the whole of the Continent, with Egypt, with Asia Minor, with Central Asia, with India, China, and Japan.

2375. Have you some business with North America?—Very little.

2376. Nothing to speak of, comparatively?—Not more than a couple of thousand a year. We call that "very little"—I mean to say a thousand a year commission.

2377. Do you know whether the Liverpool Chamber of Commerce have fully considered this matter?—Yes, because I seconded the resolution at the Liverpool Chamber of Commerce.

2378. You were present at the meeting?—Yes. The resolution I seconded was to the effect that we believed in the Bill—in the principle—but that we all disagreed as to the exact terms of the Bill—that is as far as the Chamber of Commerce is concerned; but I am not here as the representative of the Chamber of Commerce; I am simply here, as you did me the honour to call me, in my individual capacity, therefore you must not attach the weight to my evidence that you would if I had been asked to represent the Chamber of Commerce or the Cotton Exchange. The Cotton Exchange is represented by my friend Mr. Dukinfield, who sits in the room. You have done me the honour to ask me as the head of the firm of Hornby, Hemelryk & Co.

2379. Will you kindly favour the Committee with your views as to the general principles of the Bill?—Well, I may say that I think to put the clock forward is to those people who, like myself, do a very large business with the Continent and all countries east of Liverpool, as far as China, a distinct advantage; because we brokers, and those houses who act as brokers like myself, telegraph every morning the opening of the Liverpool market to the whole of the Continent. I send to something like two thousand people telegrams every morning, and the consequence is that if our opening market reaches certain centres an hour earlier, orders would be sent to Liverpool which otherwise are dispatched to New York. The fact is our Liverpool 10 a.m opening telegrams are delivered in most of the spinning centres about 11.30 to 12 noon, and when these spinners, or for the matter of that cotton merchants, return

Chairman—continued.

from their midday meal and siesta, and make up their minds to cover or hedge in futures, it is too late to operate in Liverpool, because Liverpool closes at 4 p.m., and therefore they send their orders to New York. Let the opening reach these same spinning centres one hour earlier, and all these orders will be sent to Liverpool in sufficient time for execution before the 4 p.m. close. The whole of the cotton trade is done on a system of "hedge," and a system of "futures." Contracts are made sometimes months and months, and even years, ahead by the weavers with the spinners, by the spinners with the cotton merchants, and by the cotton merchants with their brokers. All distant, far-ahead contracts, everything there is based on the system of "hedging" by "futures," and consequently if we opened an hour earlier, I am bound to say it would benefit us; it would also enable telegrams which I send to Bombay—which I send to Moscow—which I send to other places, which shall be nameless, but in Mid-Asia—to reach in time to enable them to operate in the Liverpool market. It is quite true that supposing we opened an hour earlier by the sun, and not by the clock, we should also close an hour earlier, and my own long experience of 48 years of the Liverpool cotton market is that orders that come, say, between three and four o'clock in the afternoon, from the Continent and east of Liverpool are very few and far between; they make up their minds earlier in the day, but we get most of our orders between ten and one in the morning. On the other hand, the majority of the cotton brokers in Liverpool buy at places west of Europe. I heard the evidence of the Secretary of the Stock Exchange of London while I was sitting here, and it is very much the same evidence as the representative of the Cotton Market will present to you on our behalf. They wait for the opening of the New York market, which represents a terrific—an immense—business. I do not think any man has any idea of what is transacted between the two markets; consequently, I say that this 20 minutes Bill would curtail it to a certain extent during two months; it would make it "nil" during the other two months, and business, therefore, would be impossible. Then, again, men who deal in actual cotton—who sell shipments to the Continent every day, and in the New York market—wait until the New York market closes; they have to wait till a quarter-past and 20 minutes past eight in their offices until they get the New York "close"; they then make up their prices of c.i.f. cotton for the Continent, and send their telegrams off late at night for the spinners, or early in the morning; and that is the most influential for my business, which is a pretty large one; still, that department is not the most influential. My department is not the most influential. The other side is the most influential. We are dealing with America principally. That is the business I look at; therefore, as you have done me the honour of asking me my views (I am, so to speak, between two stools), I say

Chairman—continued.

I would like it for my own business; I would dislike it for my fellow brokers, because it would be against their side. If I may say another word—I do not know whether I am wearying you—I would say, with all due deference to the framer of the Bill, that I think to alter 20 minutes backwards and forwards is a great drawback to the Bill; and one of my friends, in making the experiment, broke his dining room clock in the attempt. What I would respectfully suggest would be this (but, of course, this is quite against the west of Liverpool): On the 31st December to put the clock forward one hour, and the whole world would go on as usual—there would be not an atom of a change; your servant would call you at seven o'clock in the morning, as he is in the habit of doing; you would not look at your watch, but would get up, and at night, say at 11 o'clock, you would look at your watch, and say: "It is time to go to bed." You would get up at seven o'clock, but you would be really getting up at six by the sun, and again by the sun you would go to bed at 10 p.m. Something has been said about cows not giving good milk earlier in the morning, but I do not think there is very much in that, and as to the railways, they would start their trains an hour earlier. In my opinion, it would be a radical but easy change. I have consulted a great many of my colleagues about it, and if any change is to be made this is the one thing practicable.

2380. The Committee may take it as your own strong view that this alteration of the clock permanently by one hour, on the 31st December, would be the most agreeable?—The most advantageous. It would not put us right with Mid-European time. If we could get our friends in Holland, Belgium, Spain, and Portugal to alter also—which they might do—there is no telling what might happen; it would put the whole of Europe on one hour; it would enable us—we, in Liverpool, at any rate, who are, so to speak, at the most western point of Europe—in a better position, so far as those are concerned who are doing business with Rotterdam, for instance. There is a difference in the clock in Rotterdam between the railway time and the town's time; people get accustomed to it. In Rotterdam there is a difference of 20 minutes between the town time and the railway time. If you are told that a train leaves at 20 minutes past two, you can stop in your hotel till 2.20 p.m., and yet catch the train. People get accustomed to it.

2381. What we want to know very much is the real inconvenience which an alteration of the clock would cause to business transactions with North America?—It would simply operate as I have said in the beginning of my remarks; there is a large business done between three and four o'clock in Liverpool; it is then between 10 and 11 o'clock in New York. The opening of the New York Market reaches Liverpool between three and four o'clock, and between that time there is an immense arbitrage business done.

2382. What is there in the Bill to prevent the continuance of that?—We should have finished at the time New York opened, according to the Bill, during certain months of the year.

Chairman—continued.

2383. Your present time of closing at Liverpool is what?—Four o'clock.

2384. Four o'clock by the sun?—Yes.

2385. The time under the Bill would be five o'clock—the nominal time?—Yes.

2386. So that, instead of nominally closing at four, you would then close at five according to the new time?—You close at five by the watch, but you close at four by the sun.

2387. There is nothing to prevent the Liverpool Cotton Association saying that they would close at six, which would be five by the sun?—That would lengthen the hours of work very much.

2388. Yes. But it would entail that work at a time when, according to your own showing, all those centres to the east of Liverpool would be benefited?—Yes.

2389. Very materially?—Yes, that is my private view.

2390. You have given a very powerful argument in support of that view. What I am trying to put to you is this, that although superficially this Bill may entail an hour's extra work, the advantages to all those business centres east of Liverpool would be so great that it would conceivably to a great extent neutralise the disadvantages of working an hour more than you do now?—In answer to that I must assume that the Continental centres are as highly interested in Liverpool as I am. They may say: Well, we have got so accustomed not to depend any longer on Liverpool. We like Liverpool to guide us more or less, but we depend upon New York. It is a question which I cannot answer.

2391. Are you referring to the whole of Europe?—Yes, the whole of Europe. I can only answer: It will enable them to get the opening of the Liverpool Market earlier naturally, and reach them before they go to their dinner; but as to whether I have a right to say it will be the highest advantage to them, I dare not say that, because they may say: We have learnt to do without Liverpool; we have been in the habit of doing without Liverpool, and we will go on doing without Liverpool.

2392. Why should they say so?—The Liverpool Market would be closed, but they could operate in New York all the same. It will be, of course, to them an advantage to know the Liverpool prices an hour earlier; distinctly.

2393. So that it comes to this, that although nominally the hours would be different, really the hour of closing would be exactly as it is now?—Yes.

2394. With this difference, that you start an hour earlier?—I should not call three o'clock five o'clock; we should still go on closing at four o'clock, but it would not be four o'clock.

2395. You may call the closing hour five. Why not?—We should have to add an hour.

2396. No. You would not have to add an hour. Five p.m., the Bill hour, would be four by the sun, and your closing time?—Yes, if we closed at four, but if we closed at four by the new time, we should be closing at three.

2397. No, you would not close at four; you would close at five?—I understand if the Bill is carried

Chairman—continued.

carried as it stands at present, we should have to lengthen our hours of labour.

2398. At the beginning, not at the end; not at all at the end?—Well, in April you mean. From April to September.

2399. From April to September?—That, I venture to remark, is too complicated, and would lead to endless disputes, if not lawsuits, and questions as to the time of execution. If we had to put the clock back again a good many of the constituents of the Liverpool Market would leave the Liverpool Market severely alone. I am only mentioning this, not in opposition to the Bill, because, as I say, I believe in the idea; it is a very good one—an excellent one.

Mr. *Pearce.*

2400. I have a report here, in the "Liverpool Daily Post" of the 13th instant, of what took place at the Liverpool Chamber of Commerce. Perhaps you will kindly verify this for me; I will not trouble you with all of it. Have you a copy of it there?—Do you mean Mr. Cunningham's letter?

2401. No, I do not. I mean what took place at the Liverpool Chamber of Commerce on the 13th of this month?—Yesterday?

2402. I do not know when it took place; on Thursday, I see?—Of the Chamber of Commerce—I apologise—I beg your pardon, I thought you were talking of us.

2403. I am talking of the Chamber of Commerce, where you seconded the resolution?—Yes. I seconded the resolution.

2404. I see it stated here that: "The Secretary reported that the Commercial Associations affiliated with the Chamber had been asked for their views on the Bill," and had had replies from the Liverpool Wool Brokers' Association, the Liverpool Society of Chartered Accountants, the Liverpool Society of Incorporated Accountants, the Incorporated Trade Protection Society of Liverpool, the Tobacco Trade Section of the Chamber, and Messrs. Joseph Crosfield and Sons, Limited, and that they were in favour of the Bill?—Yes.

2405. And that the "Liverpool Steamship Owners' Association, the Liverpool Shipowners' Association and the Liverpool Stock Exchange took up a neutral position with regard to the Bill"?—Yes, that is it.

2406. And that "the Cotton Association would consider the Bill at their meeting on Monday"?—Yes, that was yesterday. The Cotton Association by an important majority voted against it.

2407. They voted against the Bill?—They voted against it.

2408. Your resolution, which was moved in the Chamber of Commerce, "approves of the principle of the Bill, and would be glad to see the measure become law, provided that effect can be given thereto without serious injury being done to important trade interests." That was carried by 17 votes to seven?—Yes, that was my recommendation put to the vote so as to show what the opinion was of what one might call representative commercial men. We thought, on the whole, the idea was a good one, only we differed as to the

Mr. *Pearce*—continued.

method, and we also, naturally, differed on the point that it would entirely ruin or annihilate business. We could not think the Bill would proceed.

2409. I gather from what you say, that all the business that would be affected westward would be telegraphic business, not correspondence?—But it is nothing to do with the post. All the cotton trade business is carried on by telegraph.

2410. Have you considered, with reference to a permanent change of one hour, that that means giving up Greenwich meridian in Great Britain?—Yes, I have considered it.

2411. You do not see any harm in that?—I do not see why we should, unless you regulate the ships by Greenwich time. If I go from Brussels to Cologne, I know it takes four hours.

2412. You think Greenwich mean time might be still maintained for ocean purposes?—Yes, certainly.

2413. But that we should begin work an hour earlier in Great Britain generally by this alteration of the clock all the year round?—Yes. The people of Rotterdam go by Greenwich time, yet the town does not; the Dutch railways go by Greenwich time.

2414. Do you notice that that is not the principle of the Bill. The principle of the Bill is to take advantage of daylight, and when daylight is not available to give it up. If you shift an hour on the 31st of December, which is the date you put, you are making eight o'clock in the morning, when it is quite dark, nine o'clock, and you are not getting any advantage, so far as the use of daylight is concerned. No use at all?—No.

2415. No use at all. It is no advantage, as far as daylight is concerned?—I have never considered that. One gets up by electric light now, and it would be the same then.

2416. The object is to promote the use of daylight, instead of artificial light?—I understand that—yes.

2417. If you make the alteration of an hour all the year round, you have seven months out of 12 in which the change is detrimental to the very object of the Bill. Do you see?—Yes. I understand, but I venture respectfully to remark that it is just putting back the clock that would upset business relations very much—that would be detrimental. It is the putting back of the clock that I object to.

2418. In September?—Yes.

2419. That is merely going back to the present practice?—As the Bill stands—at the end of September. We are as we were.

2420. Yes?—That, I think, would be especially with people trading—in fact, trading with the whole world—not trading in England alone—that would not be affected thereby, but to trade it would certainly be vexatious and troublesome, and lead to mistakes and lead to misunderstandings and quibbles and bickerings.

2421. Allow me to put this to you: Would it not be rather better not to make any change at all than to make a change of one hour all the year round. What is the good of that?—You ask my opinion as to whether I think we should add the hour, because from my own present business

Mr. *Pearce*—continued.

business personal point of view it would suit me very well; and I do not go on the principle of health.

Mr. *Holt.*

2422. I want to ask you about the Chamber of Commerce Resolution. Your Resolution has this Clause in it: "Provided that effect can be given thereto without serious injury being done to important trade interests"?—That is it.

2423. Therefore, I may take it, upon that, that the Chamber of Commerce had it in their mind that it was probable that if the Bill passed as it is, without any steps being taken, there might result serious injury to important trades?—Certainly, Sir.

2424. That was in their mind. I have seen it stated that the Corn Trade Association were strongly opposed to the Bill. Is that so?—I do not know.

2425. I see it is also stated in *this* Report?—If the Secretary read it out it cannot be a mistake.

2426. You have told us that these other Societies were in favour of the Bill?—Yes. The Secretary read that out.

2427. The Secretary read it out at the meeting?—Yes, and we must take that as gospel.

2428. That is a very important Trade Association?—The Corn Trade Association is certainly very important.

2429. Now this Eastern business. I take it you cannot conduct any business with China by telegram the same day?—No.

2430. And if the Bill passed into law, you would not be able to do so?—No, it would just enable them to get the Liverpool "calls" before they go home to their residences—the Shanghai merchants. But then I do not think we ought to take China into consideration. I have mentioned it incidentally, but after all, the business with a country like China is not really conducted by telegrams, it is only exceptional. On the other hand, as regards the Manchester merchants, I do not know whether you have a Manchester witness, I consider that the Manchester business would benefit by it, and those who do a very large business in *Indents*, and other goods with India, knowing the Liverpool market, in early telegrams put their price to Bombay; it takes 5½ hours for a telegram to go to Bombay, and I know, having been there, that the Bombay merchants go home, like they do everywhere else, at 12 o'clock, and they come back about 3 o'clock. Then they have the Liverpool opening. Some of them come back at 2 o'clock—many of them. If they have the Liverpool opening then, it is still time to act upon it, they have still time to telegraph their orders to Liverpool.

2431. I quite agree that there would be an advantage?—Yes. The same at Manchester.

2432. Now, as regards the Continent, you have told us that they ought in your business, when the telegrams are sent off of the opening of the Liverpool Market, to reach the Continental spinning centres just before their dinner hour?—Just before their dinner hour, if we were open an hour earlier.

2433. As it is to-day?—Now it reaches them nearly at dinner time.

Mr. *Holt*—continued.

2434. I think the Continental habit is to have a very long dinner hour, is it not?—Yes, generally two hours.

2435. Is not there rather a tendency to give that up?—Perhaps in some centres, but I do not think in spinning centres.

2436. Are not Amsterdam and Bremen rather falling into our habit of a short lunch hour?—Yes, but I am speaking of great centres, which still retain the old-fashioned way. They have their lunch or dinner and a sleep, and then come back again to their offices.

2437. Still, is not it rather probable that the English customs reach Amsterdam and Bremen?—I do not think so. In Amsterdam a man does not get up like a spinner at five or half-past five in the morning.

2438. The only other question I want to put to you is this: the Liverpool cotton market opens at 10 o'clock and closes at 4 o'clock?—Yes.

2439. And that is done by resolution of the cotton market?—Yes.

2440. I think it is agreed that they would have to keep open until five o'clock if this Bill passes?—To continue working under the same conditions.

2441. They would have to keep open until five o'clock?—Yes; and I made the observation that that is for the "arbitrage" business, but for the actual c. i. f. business they are waiting about until a quarter past eight, and they would have to wait to a quarter past nine.

2442. Those hours are fixed by resolution of the Association?—Yes.

2443. It is quite possible, is it not, that the Association might say, "Oh, well, ten to five is too long; we will make it eleven to five"?—They might.

2444. In that case all your advantages as regards the Eastern business would disappear?—Yes, it would disappear, but the advantage to the Western trade would remain exactly as it is.

2445. At the same time all the advantages you expect to get could equally be obtained by resolution opening the market at nine o'clock in the morning?—There is this difficulty: I do not think the cotton market is likely to say they will open at 11 o'clock. A great deal depends in the cotton business on the light of the day by which to see the substance of cotton samples. The more one gets past mid-day, the more uncertain the light becomes. The light is very good in the morning between 10 and 11; between 11 and 12 it is less good. Therefore, I say it is to their advantage—the earlier the light the better.

Mr. *Richards.*

2446. May I ask what class of people it is that indulges in the habit of two hours for dinner time?—Spinners mostly.

2447. That is operatives in factories?—No, not operatives; the chiefs of the concerns, I am speaking of.

2448. What would you say was the custom in this country in that same class of people?—I do not know; I could not tell you. I know it is very long with the Lancashire spinners.

Mr. *Richards*—continued.

2449. You would not be surprised to learn that they have two hours dinner time here?—But then they are on the spot. Telegrams do not have to take three or four hours, as they do to get through to different countries. It is not analogous. You cannot compare the two at all, under the circumstances. The Continental spinner is a different man to the Manchester spinner. He is a man of different breeding; different bringing up.

2450. Exactly; and if this class of people were to say that each particular market or body of merchants were to regulate their market by resolution, would not that create some confusion?—I do not understand what the drift of your question is.

Mr. *Richards*—continued.

2451. You have had a question put to you about these things being done by resolution. If they were to depart from the present every-day custom, rather than adopt the policy of the Bill, which is a universal measure taking in the United Kingdom, would not that be a system more likely to create confusion—if each institution or body were to adopt for themselves, willy nilly, independent resolutions, rather than have one general Bill?—In that way I am afraid I have a peculiar idea; I believe that if the House of Commons passed the Bill, and it were made into law, everybody more or less would accommodate themselves to it. That is my view.

(*The Witness withdrew.*)

Mr. C. DUKINFIELD called in; and Examined.

Chairman.

2452. You come fully empowered to represent the views of the Liverpool Cotton Brokers' Association?—That is so, Sir.

2453. Has there been what you would call a "full-dress debate" upon this subject?—There was a very largely attended meeting yesterday, and quite a full debate; in fact, so full that it took up practically the whole of the hour that was devoted to general business, and we had to adjourn the rest, but they passed a resolution of which I have a copy here. Perhaps you would like to have it. The resolution was: "That the members of the Liverpool Cotton Association oppose the passing of the Daylight Saving Bill, as it would, if put in force, seriously interfere with their trading with the American markets."

2454. Will you kindly develop the main objections?—The main objections are that we should close, under the new system, at 20 minutes to 3, which would be officially called 4 o'clock. New York does not open till 3 o'clock, that is 10 o'clock their time, and we should miss practically the whole of that important business, and it is very important business indeed. To give you an example: Some years ago, when there was some rather bad "crop news," I remember one instance where orders for 65,000 bales came in at 20 minutes past 3 to Liverpool, which left the time in which they were to be executed the last 40 minutes of the market. That is a very big transaction; it is not often we get anything quite so big as that in one line, still we often get orders for 20,000 bales spread about over considerable quantities, but if we are to retain this business we must keep the "Future" market open at least seven hours. We at present keep it open six hours. Nearly two years ago we tried the experiment of keeping it open six and a half hours, and within a week or ten days we had a very numerously signed requisition from the trading members to please go back to the old time of four o'clock. The "Future" markets of New York and New Orleans only keep open five hours and five hours and twenty minutes respectively. They say the strain is so great that they cannot stand it. Perhaps some of you gentlemen may not have seen the way the business is conducted in the cotton "Future" Exchange now a-

Chairman—continued.

days. There are a lot of men standing round in a ring like an auction, more or less the whole time. The members stand round the ring—the active traders—and the strain is very great indeed, so great that after the bell rings at four o'clock on a busy day they are pretty well exhausted, and therefore they could not, I think, keep the market open for a longer period, and if they opened it later in the day then they would lose the advantages of the Bill, which my friend Mr. Hemelryk referred to in the earlier Continental business; and in addition to that, if Parliament passed this new time officially, no doubt the manufacturers and spinners would begin at an earlier hour, and they would want to come down at an earlier hour, so that they would work at the early end of the day, and unless we were prepared to sacrifice an extremely valuable part of our business then we should have to work extra long hours, which I do not think we could do. It has been suggested that we might get the two markets of New York and New Orleans to co-operate with us—to accommodate us by opening half an hour earlier.

2455. In consequence of this Bill?—In consequence of this Bill,—yes. It has been suggested by some members who are in favour of it, but I doubt very much whether they would do so. I know New York pretty well, and many of the important traders there in the summer months either go up the river, or down the coast, or somewhere to get out of the extreme heat, and they would like to come down later rather than earlier. New Orleans, as it is, opens at five minutes past nine, and it would be asking them rather too much to ask them to open at half-past eight, and if the Bill is passed we then have to choose between two things—we have either to open and close 80 minutes earlier than now, and sacrifice the afternoon business, or close by the clock new time an hour later, in which case the new Act would be of no use to us.

2456. Which would mean that you would have to start an hour and twenty minutes earlier; that is what it would mean. Yes, that is what it would entail?—I am suggesting that we should open an hour later to counteract our working later the other end of the day.

2457. What

Chairman—continued.

2457. What sacrifice would that involve—the East Liverpool business?—The East Liverpool business—yes.

2458. It would actually involve the sacrifice of that portion—the East of Liverpool business—that I admit?—The difficulty, I think, would be this: that if we accommodated ourselves to the new Bill by closing an hour later, even if we opened an hour later, all our neighbours—all the neighbouring trades—would be all going home an hour earlier than we should.

2459. Generally speaking, you know there are several trades and enterprises in the country whose hours of opening and closing vary very considerably; for instance—(what shall I say?)—there are certain trades which open much earlier than other trades—trades that open at eight, some open at nine, some at ten?—Yes.

2460. These trades manage in some way or other to fit themselves into the general requirements and convenience of the country. May I therefore put it to you as regards the Liverpool Cotton Association, in view of the advantages which (let us assume) this Bill would confer upon the general welfare of the population of this country—do you think it would be too much to say that the Liverpool Cotton Association might endeavour to adjust their hours of opening and closing, even though it might involve a certain extra amount of work, in order to secure the advantages of this Bill?—Well, they would have to do so; that is to say, I do not think the Liverpool Cotton Market for a moment would throw over the American side of their business.

2461. The afternoon business?—The afternoon business.

2462. That is obvious?—It is too valuable altogether.

2463. Precisely?—You see the American crop is 12 or 13 millions as against the East Indian crop of four or five millions, consequently it is much the biggest portion of the trade.

2464. So that if you did conform to the provisions of this Bill, the sum and substance of the change, or of the sacrifice, if you like to call it so, would be that you would have to start work an hour and 20 minutes earlier—you would have to start an hour and 20 minutes earlier by the sun than you do now?—Yes, but what about the closing, Sir? We should have to keep open.

2465. You would have to keep open—that is so—you would close at exactly the same time as now?—Exactly the same hour; you mean work the same hours as now?

2466. Yes, you would start work an hour and 20 minutes earlier—let us drop the 20 minutes?—Yes; an hour earlier.

2467. You would start work an hour earlier than you do now by the sun?—Yes.

2468. And you would close at exactly the same time as you do now. What is your hour of closing now?—Four o'clock, we open at 10 and close at four.

2469. You close now at 4 o'clock. Under the Bill you would close at 5 o'clock, nominally you would close at 5 o'clock under the Bill?—Yes, we should nominally close at 5 o'clock under the Bill.

Chairman—continued.

2470. By the sun you would be closing at 4 o'clock exactly, as you do now?—Yes, quite so, but I do not think we would stand opening an hour earlier.

2471. We have come down to bed-rock now?—That is where the trouble comes in.

2472. The whole inconvenience of this Bill would amount to your having to start an hour earlier. It would not interfere with or in any way damage your afternoon business?—I beg your pardon.

2473. I say the effect of this Bill—the sum and substance of this Bill—would be to cause you to start an hour earlier in the morning by the sun than you do now?—Yes.

2474. And you would close by the sun?—If we opened according to the new clock time.

2475. If you opened according to the new clock time you would open by the sun an hour earlier than you do now?—Yes.

2476. You would close at exactly the same time as you do now?—That would give us an extra hour's work in the market, would it not? That is the way I take it. For instance, we now open at 10 o'clock, and if we opened at 10 o'clock by the new clock time it would really be nine o'clock by the present time, would it not?

2477. Yes, that is so?—Now, if we closed at four o'clock by the new clock time we should be closing at three o'clock. Then we should be missing all our American business which we could not afford to do, so we would have to do one of two things—we would either have to miss the American business or we would have to open an hour later and close an hour later, and I think that if the Bill were passed that is what we would be compelled to do.

2478. Do you think an earlier opening by the sun would be essential to your business. Would it be necessary to start an hour earlier? Is there sufficient work to do?—Well, it might be, Sir, in this way: As I suggested at the beginning of my remarks, the spinners and manufacturers, if they adopted this new time, would be all coming down at 10 o'clock on the opening of the market by the new clock—which would be nine o'clock present time.

2479. Yes?—Then they would have to be attended to, and unless we are going to sacrifice the American end of the business we have got to remain open until 5 o'clock by the new clock time, so that it would be 10 to 5 instead of 10 to 4. That is the dilemma we are in.

2480. And you think there will be sufficient business caused by the spinners starting to work earlier to make it worth the while of the brokers to do that?—Yes, I think there would. Then there was just one little point I wanted to mention. You know spinners make use of this late afternoon market to a very large extent under the new condition of business which has grown up during the last few years, whereby the spinner buys cotton on "call." Instead of buying it outright, he buys it in points "on futures"—say 50 points on "futures," but he fixes the time when he will take it. It is at his option to fix the time when he will "call" that cotton, as he says, between the time of purchase and the time that is given him

Chairman—continued.

in the bargain. To put it in a few words it is this way: Suppose a spinner says to me, "I will buy from you 500 bales of 'Good Middling' cotton at 50 points October, to be delivered to me any time I like in October." Very well, any time in the month of October—any day—he can come to me and say:—"Now I will take that 500 bales at 50 points on October contracts to-day." By the first part of his bargain he secures the quantity and the quality—by the last part of his bargain he fixes the price of the "call" on the bargain. Now this is the point I want to impress upon you:—As often as not this man—especially on the Manchester market—would wait until the last hour of our market, when they have got the New York cable, and see the trend of the market—they will wait till half-past 3 or a quarter to 4 before they will decide about "calling"—then suddenly telephone down: "I will 'call' for the 500 bales at such a price"; so that the afternoon market is very useful to him in that respect.

2481. What difference is there in the inception of the transaction—the beginning of the translation and its final completion?—Do you mean what difference in time?

2482. In time?—That is purely a matter of arrangement. A very common thing is to buy cotton on "call during this or next month," and a spinner who has made contracts and bought this season will buy it from you on "call" during October or November, as the case may be. The ordinary transaction often runs "during the present month or the next month." That is quite a new style of business of the last two or three years, and one which is growing very largely indeed; in fact, we have had to enact new regulations and rules to fit it.

2483. Then it comes to this, that it would interfere with one portion—I admit an extremely important portion—the central portion of the Liverpool trade—by your having to work an hour earlier, whether at the start or the finish?—Yes.

2484. That is what your objection amounts to?—An hour longer.

2485. An hour longer?—Yes, I do not think under the modern conditions of business that they can stand the strain. You know it is only during the last 8 or 10 years that this "ring" of trade has obtained. In the old days you may possibly remember we used to trade walking about on the "Flags" amongst others, but now it is much more concentrated, much more intense.

2486. Consequently involves a much greater strain on the attention?—Yes.

2487. You do not think it would be possible for the Liverpool Cotton Association to meet an hour later and close at the same time as they do now?—Do you mean close and re-open again, Sir?

2488. No. To open an hour later. I suppose you open now at 10 o'clock, do not you?—Yes. You mean open at 11 and close at 5?

2489. Open at 11 and close at 5, so that your hour of closing would be precisely what it is now only you would begin to work an hour later?—Well, as I said just now, that is what we would be forced to do if the Bill passed, but that is what we do not quite want to do, because the early part of the day has its advantages in light. Spinners do not like to buy in the afternoon light if they can help it; they prefer the early daylight—the forenoon for preference, always. Then again, there is another point; if we close too early a great deal of business will go to New York; that is to say, I have known cases myself where frequently business in connection with Manchester, even as it is—late business at 4 o'clock—where men have made "trades" or sold a quantity of stuff and they wanted to have some "cover" or some "hedge," and the order has gone to New York, and it would be still more the case if we knocked off the last hour of the market; and New York, is a very keen competitor with Liverpool as it is.

Mr. *Holt.*

2490. I think you have told us the spinners frequently arrive early in the morning, and will do?—Yes.

2491. They come down from Preston, Bolton, Blackburn, and so on?—Yes.

2492. And are frequently there by ten o'clock in the morning?—Ten o'clock, or very little after.

2493. I think I am right in saying that it is very customary amongst these people, instead of going in the first instance to their own office or going straight to the mill, to come straight to Liverpool and do their Liverpool business first, and then go to their mill or their works?—What they do, Sir, I think, is very often this, they come down to their brokers in Liverpool and just ring up the mill on the telephone and find out what is doing, and so on.

2494. And go back to the mill afterwards?—And go back to the mill after lunch.

2495. Therefore, if the Liverpool Cotton Market were to open an hour later there would be not only inconvenience to these people, but it would have a tendency to make the work of their mill to go on an hour later—it would postpone their arrival there?—Well, it would tend to defer the office work of the mill, I should think, not the other.

2496. It would defer the office work. You gave us a time at which the New Orleans Market opened—what was it?—9.5.

2497. 9.5—what is the difference of time?—An hour. Oh, I was thinking of the difference of the time between New York and New Orleans—between here and there it is six hours all but five minutes.

2498. And they open at five minutes past nine?—They open at five minutes past nine, yes.

2499. So that you are in communication with them from five minutes past three to four o'clock?—Yes, the New Orleans cables come through a little slower; we get them about a quarter or 20 minutes past three.

2500. It takes a little longer to come from New Orleans than from New York?—Yes, to the New York messages we frequently get answers in eight to ten minutes—sometimes five to six minutes.

2501. The same remark applies to Memphis as to New Orleans, does it not?—Yes.

2502. That is not a "Future" market?—No, that is not a "Future" market. It is essentially a big "spot" market.

2503. Is

Mr. *Holt*—continued.

2503. Is not the use of the "big spot market" for the hour during the day very important?—Very, and I was going to say this—that taking Memphis as an instance—because I trade with Memphis, and I know—Memphis very often waits until they get the opening of New York, which they get very quickly indeed, before they make the actual offer of cotton to Liverpool, which we can accept or not accept before the close of our market.

2504. I do not know whether you are able to answer this from your own knowledge—are you aware that the Liverpool grain trade express themselves also as opposed to this Bill?—Well, I understand that is so; in fact, it is current talk in our own Exchange that the grain market is very much against it.

2505. Their position is very similar to yours?—Very similar, with this exception—it almost emphasises it—a great deal of the grain business is done at Chicago, and the Chicago market opens very early on account of being so far west; it opens, I think, at nine o'clock.

2506. For the very express purpose of being in communication with the British and Continental markets?—Yes.

Mr. *Pearce.*

2507. Is that so?—Yes.

Mr. *Holt.*

2508. Now the Liverpool Cotton trade is an extremely important trade, is it not, in amount?—Yes.

2509. So is the grain trade?—Well, the cotton trade is much bigger.

2510. The cotton trade is much bigger, but it is perhaps the most important trade in the town?—It is, I think, undoubtedly; next to the shipping trade it is the most important produce trade undoubtedly.

2511. It is very probable that if these trades found themselves under the necessity of keeping open till five o'clock in consequence of this Bill passing into law, the whole of the rest of the businesses in Liverpool would have to adopt their hours?—Do you mean the other trades?

2512. Yes. The practical inconvenience of a town like Liverpool running different hours for the commercial businesses would be enormous?—I suppose it would be so.

2513. Take the shipowners—they would find it very difficult—they would practically have to keep their offices open at the same time as the offices of their customers were open?—Let me see; how would this affect Banks in that connection? They would close at three, two hours earlier, for instance, supposing we adopted the plan of closing an hour later and closed at five; if the Banks closed at three, it would not affect us very much—the Banks.

2514. If you did not open until 11 there would be great pressure on the part of the cotton trade on their bankers to adopt hours that were more nearly coincident with their own?—Well, I should think it would come to that—that is the only way you could make it fit in.

Mr. *Richards.*

2515. Of course, from what we can gather there does seem to be a great difficulty in the matter, but is not there a difference in the times now of business men?—In what way, Sir?

2516. Do not Banks close much earlier than merchants' offices now in this country?—Oh yes.

2517. Speaking generally?—Speaking generally, yes.

2518. And you would not be surprised to learn that there are some organisations that take large sums of money after the Banks have closed in some of our towns in the country, therefore we find these people have to provide safes and have to work in conformity with banking hours?—In the cotton trade, Sir, we are doing away as much as possible with actual cash—that is to say, our payments are all in cheque and voucher. That is a great point that we make, because, of course, cotton goes into very large sums; and I remember in my apprentice days having to go round with five, 10 and 12 thousand pounds in my pocket, but now a youngster, if he is sent round from office to office, has a piece of paper—a voucher—on the clearing house, that is all.

2519. If you in Liverpool had to extend your market hours one hour, it would not be necessary for Banks to keep open for your purposes longer, would it?—I do not think so. I do not think Banks are any particular point in it at all.

2520. Do I understand that there is such a difference in our time here that three o'clock English time is 10 o'clock New York?—Yes, it is five hours New York and six hours all but five minutes New Orleans.

2521. And as a general custom the Liverpool market can only deal with the New York market one hour per day?—That is all.

2522. If this method were adopted it would rob you of that one hour?—It would absolutely cut out that business.

2523. Unless some other arrangement were made?—Unless we can arrange our times of opening, we are in the dilemma of either not opening early enough according to the new time, or else we have to close an hour later.

2524. And it is possible that if our custom was to start earlier in the morning, with the idea of finishing off work earlier in the evening on that system, what would benefit us might also benefit our American cousins, might it not?—Well, if they would adopt the same variation of time it would be a very great thing. It would be a good thing if you could get our American friends on the other side to modify the time a little—to alter it.

Mr. *Pearce.*

2525. What is the population of Liverpool?—820,000.

2526. 800,000, about?—Yes, fully.

2527. If this Bill was advantageous to the whole of the rest of the Kingdom, that would be in the proportion of under one million to about 44 millions?—Oh yes. Of course that goes without saying.

2528. You would not outweigh the disadvantages to Liverpool against the advantage to the rest of the community?—Well, of course I am only pointing

Mr. *Pearce*—continued.

pointing out the difficulties as regards our own business.

2529. I agree. You are explaining to us the effect to Liverpool?—Yes.

2530. Would not the effect on the Liverpool Cotton trade, as you put it, be to spread the work now done over seven hours instead of six?—Yes, it would be.

2531. That would be the effect?—That would be the effect.

2532. Would not that relieve the strain somewhat?—No, it would not, because, as I explained to you just now, when we tried to keep open 6½ hours some two years ago, in a very short time we had a huge petition up before the Board of Directors to please go back to the old hour; we could not stand it.

2533. Who was the petition from?—From the traders in the ring and the men in the "room" generally.

2534. Is there a "season" in your trade?—Yes.

2535. Which is the busiest time?—Well, the busy season is from September to about spring; it begins about August practically.

2536. That is, you are practically slackest in the summer months?—Yes, in the summer months if all goes right—if we have no crop damage or anything of that sort.

2537. The changes proposed by the Bill, then, affect your slackest time only?—Quite so.

Chairman.

2538. You said just now that Mr. Cunningham had made a suggestion to the Liverpool Cotton Brokers' Association with a view of endeavouring to bring about some sort of *modus vivendi* between New York and New Orleans and Liverpool?—Yes.

2539. In order to see whether the advantages of this Bill might not be secured for the rest of the population, which seems to me a very patriotic move, is it intended to try and feel the pulses of those people, of the two Associations?—Well, nothing officially has been done in that respect, Sir, but I believe some correspondence has passed—in fact, I have written myself to some of our correspondents to know how it would affect them.

2540. That would be unofficial?—Quite so.

2541. It was not decided by the Liverpool Cotton Brokers' Association?—No, it was not even suggested by them; it was merely a letter that Mr. Cunningham wrote to the papers.

2542. Was he present himself at the meeting?—Yes, he was present.

2543. Did he argue the matter out?—He was one of the advocates of the new measure on the idea simply that New York and New Orleans would open earlier to accommodate us, but then, of course, there is a big "if" in the matter.

2544. You have no reason to assume that they would fall in with it?—No; I am afraid that they would not do it, for the very reason I gave you just now—that they all live out of town in the summer, it is so frightfully hot there—it is 90 to 95 degrees in the shade.

2545. Do you think the strain upon the members of the Liverpool Cotton Brokers' Association is greater than that on the gentlemen of the Press,

Chairman—continued.

who work far longer hours?—Well, I think it is, Sir, in busy times. I do not know whether you have ever been in the Cotton Exchange, Sir?

2546. No, I have not?—If you are ever at Liverpool, it would be worth your while to look in.

2547. Is the strain greater there than on the Stock Exchange?—Yes, I think it is; it is more intense for the time.

2548. I should have thought it was the other way about.

Mr. *Holt*: You mean the London Stock Exchange?

Chairman: Yes, I mean the London Stock Exchange.

Witness: I have no experience of the London Stock Exchange.

2549. There they deal in such a variety of stocks and securities that I should have thought the strain would be greater there. Here you have only one staple article, and the variation must be very great?—Yes.

2550. Apart from the inconvenience likely to be caused to the Cotton Trade Association, have you considered the social aspects of the Bill?—Yes.

2551. Will you tell us what you think—briefly?—From that point of view, I do not see any objection to it. The only objection I do see to it, quite frankly, Sir, is the altering of your clock four times forward and four times backward. I think if the thing is going to be passed at all a clean hour on the 1st of May and a clean hour back on the 1st of September would be much preferable.

2552. You are quite sure about that. You think May in preference to April; have you any reason for selecting May instead of April?—Well, I only suggested that, Sir, because the hour and 20 minutes which you gradually put the clock forward culminates on the 1st of May. That was really the reason.

2553. The average of it would be about the 15th April—the hour and 20 minutes?—Yes.

2554. Would you prefer the setting back of the clock in the autumn?—Certainly.

2555. You would?—Certainly.

2556. You would not make a permanent alteration?—Oh dear me no, and *that*, as a cotton merchant, I should say most decidedly, because we should be coming down before it was light enough to see what we were doing in Winter.

2557. Now are you quite convinced that the only effect of taking an hour, instead of an hour and twenty minutes—an alteration even for six months, of an hour, if that were adopted—as regards the Liverpool Cotton Association, would be that you would start work an hour earlier?—Yes.

2558. You would work an hour earlier. My point is that you would start an hour earlier, but you would close at the same time as you do now, by the sun?—Yes. Well, if we started to work an hour earlier and closed at the same time as we do now, we would be working seven hours instead of six, would we not?

2559. Yes, that is right?—That is where the objection comes in.

2560. Even though the earlier hour is in the morning

Chairman—continued.

morning and at the start of the work, instead of at the finish. Let me put it in this way. Now, your hours are 10 to four ?—10 to four, yes ?

2561. Then they would be 10 to five ?—Yes.

2562. Therefore, you will have finished your daily work an hour earlier, having started an hour earlier ?—Yes.

2563. Do not you think that makes some little difference as regards the general spreading out of the strain on the mind. With an hour earlier in the morning the work is far less intense, and if you consider the general equilibratory effect of that earlier hour, do not you think that the intensity of the strain might to a certain extent be mitigated ?—I see your idea. It would be very prolonged—seven hours.

2564. You said incidentally, in reply to Mr. Holt, that the grain dealers generally are against the Bill ?—Yes.

2565. Would you be surprised to hear that Peilmann & Phillips—well-known corn merchants in Liverpool—are wholly in favour of this Bill ? —Perhaps they may not do a Western business, I do not know them.

2566. You have not heard of them ?—I know them by name, of course.

2567. I think they do a Western business ?— I do not know what style of business they do. The whole tone of this Bill affects this trading with the West.

2568. That is obvious—that is quite clear.

Mr. *Pearce.*

2569. You were good enough to write to me. May I use these figures. May I mention the figures you gave me ?—Certainly. Do you mean the cablegrams ?

2570. I will read your note. May I take it from you that the Commercial Cable Company and the Western Union Cable Company gave you a return of the number of messages sent and received on cotton business only ?—That is right, Sir.

2571. "Between the hours of 2.40 and 4 p.m. during the month of May just passed" ?—Yes.

2572. "The total figure being 7,411 cablegrams "—Yes.

2573. "This comprises 21 working days" ?— Yes.

2574. "Because Saturdays and Sundays do not count" ?—That is correct.

2575. "As the Cotton Exchange closes at 12.30 p.m. on Saturdays" ?—Yes.

2576. "The messages sent to America total 3,160" ?—Yes.

2577. And "received from America 4,251" ? —Yes.

2578. "Or an average sent and received of 351 messages daily in the 80 minutes above referred to" ?—Yes that is quite correct. The Cable Companies asked me not to have those figures published in the Press.

2579. They go on the minutes of our evidence ? —Yes, but will those figures go into the daily papers ?

2580. Not necessarily, because the Press will be discreet about that, if you wish it ?—They asked me specially, as a matter of fact, not to

Mr. *Pearce*—continued.

publish them. I have the individual figures of each Company. They are both very jealous.

2581. I asked you whether I might put them to you, but if you would rather not put them in we will leave them out ?—By all means put them on the minutes.

Chairman.

We will ask the Press not to make any use of them.

Mr. *Pearce.*

2582. I may take it that any trade, including the Cotton Brokers' Trade, would adapt itself to the demands of their customers in point of time and other things too ?—Well, unless it was too onerous. I am thinking now of the other side of the water; for instance, take the New Orleans friends. I think if you asked them to come down at 8 o'clock in the morning they would rather grumble.

2583. We cannot expect New York or New Orleans to alter themselves because we do ?— No, of course not.

Chairman.

2584. Have you any objection to these figures appearing on the minutes ?—No.

Mr. *Pearce.*

2585. They shall be kept off the minutes if you wish it ?—Oh no, I do not wish it.

Mr. *Holt.*

2586. I think Mr. Cunningham's name was mentioned as being one who was rather more or less in favour of the Bill ?—Yes.

2587. I think in his letter he clearly says that unless some arrangement could be come to with New York and New Orleans to alter their hours, the Cotton Association would oppose the Bill tooth and nail ?—Yes, he did; those are his words.

2588. It was suggested, I think, by the Chairman that you might spread out your hours, that is, keep your market open from 10 to five ?—Yes.

2589. Am I not right in thinking that the general tendency of business lately—within the last 20 years or 30 years—has been to concentrate the hours ?—Yes.

2590. In our fathers' time the "market" began very much earlier than it does now and went on much longer ?—Yes.

2591. And one of the undesirable results of spreading out the time at all events was to make a very long luncheon interval ?—Yes.

2592. In which a great deal of idleness and other disagreeable and objectionable habits took place ?—Yes.

2593. And it is a great advantage to a business community or trade to concentrate the business hours ?—Yes.

2594. And that it is a general advantage to work hard while you are at work, and to go home early ?—To work hard while you are at it, and to get away in reasonable time.

(*The Witness withdrew.*)

2595. Have

Mr. J. A. JOHNSTON called in; and Examined.

Chairman.

2595. Have you prepared an abstract of the different hours prescribed in Statutes—the provisions of different Acts?—Yes; I have.

2596. Can you certify that as correct?—I think I can certify its correctness; I say that, but I cannot undertake to say that it is an absolutely complete list. It is the best I have been able to do in the time at my disposal. I think I have got most of the English Acts, but I have not had time to look through the Acts relating only to Scotland and Ireland. The Bill applies to the United Kingdom. But I should like to mention there are a great many more cases in which hours as specified by bye-laws and regulations and other rules of that nature, which are made under statutory authority, than the cases in which you find the hours mentioned in the Statute itself. Of course there are scores and scores of bye-laws.

2597. For instance, let me take one point. You mention the "Vestries Act, 1831"?—Yes.

2598. And you say under the heading of "period of time, 4 p.m." To what particular sphere of the operations of that Act does that refer? Does it commence at 4 p.m.?—I am extremely sorry I have not the provisions of that Act here.

2599. It conveys nothing to my mind to say "4 p.m.?"—I did not attempt to write down the whole of the provisions, but if I recollect rightly what that does refer to is the hour of meeting.

2600. I think it would be advisable if you would amplify this—summarise the times, rather?—If you please. I can give you some instances. I have brought some here, but not all.

2601. You will send them to us?—Yes.

Mr. *Pearce.*

2602. May I take it that whenever you say "9 a.m."—"4 p.m." all through the list you refer to what is 9 o'clock?—I ought to have mentioned that. As a matter of convenience, I have used "a.m." and "p.m." throughout, because the words of different Statutes vary so much. They very often say "from 9 o'clock in the morning till 4 o'clock in the afternoon."

2603. May I take it that wherever they mention a time they always use the word "o'clock"?—

Mr. *Pearce*—continued.

Not always. In quite recent Acts you will find "9 a.m." in the Act of Parliament, "9 a.m.—4 p.m."

2604. You take it as a Barrister that that means "9 o'clock" or "4 o'clock"?—I think that is provided for by Act of Parliament—the Statutes (Definition of Time) Act, 1880.

2605. Exactly. So that wherever you find in an Act of Parliament "9 p.m." you take it that that means 9 o'clock p.m. by the definition of the Statute?—I think so. That is Greenwich mean time.

2606. And the same remark applies, I suppose, to all the large number of cases in which the hours are fixed by orders and regulations and bye-laws made by Government Departments?—Certainly that applies. That Statute I referred to applies not only to Acts of Parliament, but to deeds and other legal instruments.

Chairman.

2607. You will kindly amplify these for us, very, very briefly—just to invest these notes with interest, and to let us know what the purport of the provision is?—Yes.

2608. I see a very curious entry here, "Disorderly Houses Act, 1751,"—"period of time," "noon." What does that mean?

Mr. *Pearce.*

2608A. "Noon" of course means the natural noon?—"Noon" is the word used in the Act of Parliament.

2609. That means natural "noon"?—"Noon," I take it, means "12 o'clock, mid-day."

2610. No, not "o'clock." "Noon" means when the sun is at the highest point above the horizon. Is not that law?—I can only state that the only provision I know of is contained in the Statutes (Definition of Time) Act.

Chairman.

2611. You will amplify this "Schedule;" and let us have it complete?—Yes.

(*The Witness withdrew.*)

Revd. E. DE M. RUDOLF called in; and Examined.

Chairman.

2612. You are Secretary and Founder of the Church of England Incorporated Society for Providing Homes for Waifs and Strays?—I am.

2613. How many boys and girls has your Society under its charge?—We have now nearly 4,000 boys and girls.

2614. Who are distributed over how many homes?—About 104 homes in various parts of the country.

2615. The object of your Society, I take it, is to provide destitute children with homes and superintend their moral and material up-bringing?—Yes, it is so.

Chairman—continued.

2616. How many children have passed through your homes?—Between 13,000 and 14,000 children altogether have been provided with homes since the establishing of the Society.

2617. And so far as you know, the large majority of them are now responsible and respectable members of society?—That is so.

2618. I suppose these waifs and strays have no parents?—The majority have no parents; they are either waifs and strays through destitution or through over-crowding and immorality on the part of their belongings. They are rescued in order to prevent them from drifting

Chairman—continued.

drifting into crime, but many of them are below the average in physical and mental capacity, and that is the ground upon which, I think, it would be well to pass the Bill which is before the House, so that they may have as much sunlight and daylight as possible, in order to bring back the health and strength to them which they have lost during the period they have spent in the slums of our large cities.

2619. I suppose your Society never asks for, or receives, any pecuniary payment for taking care of the children?—The majority of the cases are taken absolutely free, without payment; but where there are relatives who ought to recognise their responsibility, we ask for a nominal payment in order that they may recognise their responsibility to the children.

2620. Your view is that the Bill will do good?—I think so, distinctly.

2621. Have you any Board with whom you act, or is this your personal view?—We have an Executive Committee.

2622. Have they considered the matter in their corporate capacity?—They have.

2623. And they generally approve?—They approve of my view of the matter. I put it before them and they quite approved.

2624. What do you suggest in regard to the provisions of the Bill—how far do you agree with the method?—I think it would be simpler to have three changes of half-an-hour each than four changes of 20 minutes each. The half-an-hour would be more easily remembered than 20 minutes, and the six changes in the year would be preferable to eight.

2625. Can you say anything for the guidance of the Committee as regards the relative advantages of a permanent alteration or a half-yearly alteration of time?—Well, I do not think a permanent alteration would meet the case at all. The object of the Bill is to ensure the use of more daylight and sunlight when they are available, and the permanent alteration I do not think would bring that about.

2626. From what point of view; do you mean in the winter months?—In the winter months more artificial light is required in the morning. Supposing a permanent alteration were made to put the clock forward for an hour, as has been suggested, we should use more artificial light in the morning, which would be bad for the children's eyes. The arrangement in our homes at present is that the children rise at six in the summer and seven in the winter months. There would be no harm, and much benefit would, I think, accrue if they were to rise at five by the sun instead of six in the summer, or even earlier.

2627. What would there be to prevent your having a different time table, at any rate for the winter months, in accordance with the altered provisions of the then standard time? You say your hours are six in the summer and seven in the winter?—Quite so.

2628. Your hours then would be seven and eight, according to the then regulated time?—Probably—yes.

2629. So that would it not be better to have a permanent alteration and avoid constant tampering with the clocks and watches and have alterations in different time-tables?—I think the children—especially some of the delicate children—require more rest in bed during the winter months than in the summer months. They can rest, if necessary, during the summer months, in their gardens and playgrounds, which would be impossible in the winter; and it would be much better for them to rest in bed in the winter months than to be sitting over fires.

2630. Precisely?—Therefore I should not advocate any alteration in the arrangement of the present time—that is to say, under the Bill they would rise an hour and 20 minutes earlier in the summer and go to bed an hour and 20 minutes earlier during the summer months. In the winter they would do as they do at present, viz., rise an hour later.

2631. Precisely. Your arguments would go to show that it is better to alter the clocks twice a year rather than that you should alter your time-table?—Yes.

2632. Your domestic economy?—That is so.

2633. Does not it appear to you as being somewhat out of proportion that the whole standard economy of time should be altered twice a year in order to save you the trouble of altering your own time-table? There seems to be a certain disproportion between the one thing and the other; in other words, would not it be better for you to alter your time-table during the winter months and avoid the half-yearly adjustment which would be necessitated under this Bill?—I do not think so, Sir; I think, as I have already explained, that the winter time-table does differ now from the summer time-table—that is to say, the children's hours are later in the winter months; that arrangement, of course, would still hold good, and the rule at other times is that the children do not rise so early by the clock in winter as they do in the summer.

2634. But that you can adjust as you like, apart from this Bill?—We do.

2635. You could make the children rise three hours later by the sun if you chose to do so?—We could.

2636. There is nothing in this Bill to prevent you doing that?—Nothing at all.

2637. Therefore I suggest to you that, if there is any question of the relative advantages of a permanent or piece-meal alteration, it might be met by the making of a permanent alteration rather than a piece-meal one?—The time-tables depend to some extent on the school hours.

2638. The public schools?—Yes. The children go out to the elementary schools, and therefore any change, I think, should be universal.

Mr. *Holt.*

2639. Your children all go out to the elementary schools?—Yes.

2640. What age are these 4,000 boys and girls?—They range from one year up to 17 and 18.

2641. Through the whole length of childhood, really?—Yes.

2632. You say that in summer they rise at six o'clock? When do they go to bed?—It depends entirely upon the age of the children. The younger children, of course, would go to bed soon after six or seven o'clock in the evening; the

Mr. *Holt*—continued.

the others would remain up perhaps for an hour later—the older ones.

2643. What would be a fair age to take—14 or 15? Fourteen would be a fair age for the older children?—Say 14 years.

2644. You begin to get rid of them then?—At 14 to 16.

2645. When does a boy of 14 go to bed at your Institution?—A boy of 14 would go to bed at half-past seven or eight.

2646. 7.30 to eight?—Yes.

2647. In winter and summer alike?—Generally in winter and summer alike, yes.

2648. If a boy of 14 is going to bed at eight o'clock and is going to get up at six o'clock in the morning this Bill would not affect him in the summer—it is perfectly broad day-light at eight o'clock?—The day-light is of two kinds—there is the "waning" daylight and the "rising" daylight; and on the whole the "rising" daylight or the "rising" sun-light is far preferable and much more healthy for young children than the "waning" day-light or the "setting" sun-light. I think it is a well known fact (and medical experts would tell you so) that it is far better to get the early day-light than the waning day-light; therefore, I think it is better for the boys to rise an hour earlier in the morning, even if they have to spend the hours of "waning" day-light in bed.

2649. The boy does not really get *more* day-light, but *better* day-light then?—Better daylight.

Mr. *Holt*—continued.

2650. I expect you have found (from the cases you have probably had to deal with) that all these children, especially the delicate ones, want a great deal of time in bed?—Yes

2651. And ought to have?—Yes.

2652. I take it you would say, generally speaking, that it is not very desirable that the hours that children are out of bed should be increased?—No, they should not, I think.

2653. Taking the year all round, and looking at the world at large, you would say that most of the modern children are out of bed quite as much as is good for them?—Quite, and more so, some of them.

2654. If this Bill had the effect of increasing the hours that children are kept out of bed, it would be rather unfortunate for the children?—Yes. There is one remark I may perhaps be permitted to make: I think in the interests of morality it would be better to give people more day-light if more day-light is available—I mean in our over-crowded populations. It is readily seen that most mischief is worked after dark at night in the country lanes, and also in the London slums.

2655. I think there is no doubt about that?—And, therefore, I think that it is far better to give as much day-light as we can, and to tire out the children, if possible, before the darkness sets in.

(*The Witness withdrew.*)

Thursday, 18*th June*, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Mr. Pirie.
Colonel Philipps.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. H. BABINGTON SMITH, C.B., C.S.I., called in; and Examined.

Chairman.

2656. You are Secretary to the Post Office?—Yes.

2657. This Committee attaches the greatest possible importance to your evidence, because they consider that the practicability of the Bill is largely contingent upon the extent to which it may possibly interfere or not with the convenience of the Post Office, and consequently the convenience of the public. Would you kindly develop your views upon the general principle and scope of the

Chairman—continued.

Bill, first, as regards the home service?—The point to which I have rather specially directed the evidence I have prepared is the effect of the proposals of the Bill, if they were adopted, on the Services of the Post Office. I take it that is the point to which the Committee would probably attach most importance.

2658. Certainly?—I propose, if you approve, to deal, first, with the postal services.

2659. If you please. I might as well mention at

Chairman—continued.

at this point that those representatives of railway interests who have come before us have been practically unanimous in their view that whatever alterations may be required by the Bill would not cause any dislocation to their services?—I have read the evidence of most of the railway managers, but I did not gather the impression that that was the case as regards the Continental services.

2660. The inconvenience, they considered, would be such as not to gravely interfere with their services. That was the impression left upon my mind personally, but my colleagues, in cross-examination, will be able probably to throw more light upon it. Will you please proceed?—As regards the home mail service, the change of the clock would not produce any serious dislocation at all. The collections, deliveries, despatches and arrivals of mails would take place by clock time as they do now, assuming, of course, that the railway time-tables remained substantially unaltered. There would be a certain amount of inconvenience at the times of change, especially at the change in the spring, when the clock is put forward. In the case of mails which are in course of being dealt with at two o'clock on Sunday morning there would be 20 minutes less time for dealing with them; and as, of course, the staff is arranged so as closely to fit the work to be done, that would mean a certain amount of dislocation, and probably some additional staff at that particular time, and therefore a certain amount of expense. At the same time the amount of work that is going on at two o'clock on Sunday morning is not very great, so that the expense would not be a very serious matter. There would also be the mails on each Sunday morning on which the change was made which would arrive late by the amount of the change, and to that extent there would be dislocation of the deliveries. At the same time, so far as London is concerned, if the change is made on Sunday morning that is unimportant, because there is no delivery in London on Sundays; and in provincial towns and country places, although, generally speaking, there is a delivery on Sunday, a delay of 20 minutes in that delivery would not be a matter of serious importance, because not being a business day it is not a matter of urgency to receive letters at a particular time. I would therefore say, generally, as regards the internal service, that there would be some inconvenience at the time of the change; but that if the railway time-tables remained substantially unaltered, the service after the change was made would go on without inconvenience at the same clock time as at present.

2661. Then with regard to foreign mails, what is your opinion?—With regard to foreign mails the case is different, and there a difficulty would arise which, I think, is a very serious one. Unless the clock time of Continental countries were altered also, it would probably be impracticable to alter the time of the running of the Continental mails. The time of running of those mails is not fixed arbitrarily, but depends upon the business day of the principal towns. For instance, for the night mails from France the time of posting is naturally fixed by the end of the business day

Chairman—continued.

in Paris, and unless the clock time in Paris were altered also, it probably would be impracticable to alter the posting time of the night mails. And, of course, there are elaborate connections all over the Continent which work in with the night despatches. Therefore I anticipate that unless the Continental countries also alter their clock time, it would be found impracticable to alter the time of running of the principal Continental mails; that is to say, the arrival of the Continental mails would be one hour and twenty minutes later by clock time during the summer months. The result of that would be that the night mails, which are the most important mails, at any rate from France, would no longer fall into the first delivery in London, but would fall into the second or possibly even the third delivery, and that the provincial connections would also be thrown out of gear. There is, of course, an elaborate system of connection for the conveyance of the Continental mails to the provinces, and unless the time of those trains were altered, the connections would be thrown out of gear. The mails would have to be sent by later trains, and the time of delivery in the provinces would probably be later, not by one hour and twenty minutes, but by something more than an hour and twenty minutes, probably in many cases by two or three hours; because there would not be trains exactly connecting with the altered time of arrival of the Continental mails. That would mean, both in London and the provinces, a shorter time for dealing with Continental letters for answer the same day, unless, of course, the time of despatch and the time of posting in the evening were altered. As regards the outgoing mails in the evening, the result of the alteration of clock time, if the time of posting remained unaltered would be that there would be a longer time for dealing with the mails before despatch, and there would be no disadvantage in that from the point of view of the Post Office; on the contrary, there would be some advantage, because time is run very fine at present, and it would be a considerable relief to have a longer time for dealing with the mails. But I should anticipate that there would be very soon a demand on the part of the public to shorten the time of posting for Continental mails, so as to swallow up that interval; and if that demand was conceded, it would mean large alterations of the railway connections with the provinces, in order to give a later time for posting the Continental mails in the provinces. It would also mean I think, probably, that having given a later time of posting in summer there would be considerable difficulty in persuading the public to go back to the earlier time of posting again in winter. I should anticipate that it would in the end give rise to a demand for a later time of posting all the year round. There would also, as regards the day mails from the Continent, be some dislocation. At present the day mails from the Continent arrive in time to be delivered, as a rule, the same evening, too late, of course, for the business day, but in time for social purposes.

2662. You mean what is known as the Club train in Paris?—I mean the train that arrives at 4.50 at Cannon Street; letters which arrive by that train from France, that is to say, letters

Chairman—continued.

posted either late at night or very early in the morning in Paris, are delivered the same evening in London. If that train were due to arrive one hour and twenty minutes later, if it were punctual the letters might still be delivered by the last delivery in the evening. If it were unpunctual, which is not infrequently the case, they would not be delivered by the last delivery in the evening. There would be some cases also in which Continental letters coming by the day mail would not catch the night mails to the provinces; therefore there would be substantial delay in the delivery of letters in the provinces. In fact, generally speaking, the result of the later arrival by clock time of the Continental mails would mean a very serious dislocation of the whole of the services which connect with the foreign mails, and would mean, in most cases, a material curtailment of the business day for dealing with Continental correspondence. I may give one instance, perhaps, as to how it would work. To take the case of Liverpool, for instance, the Continental letters arriving by night mail arrive at Liverpool at 12.10, 10 minutes past noon, and are delivered at about 1.30 p.m. They have to be sorted, of course, on arrival, and they are delivered at about 1.30. There is from Liverpool a special late-fee dispatch, at five minutes past four, which just gives time to deal with urgent letters and to answer them the same day. That dispatch at five minutes past four connects with the London and Dover sorting carriage, and letters posted at that time with the late fee are delivered in Paris or at Havre, or any northern French town, early next morning. If the arrival of the night mail were an hour and twenty minutes later, they would then fall into a later train from London, and would not be delivered in Liverpool till four o'clock, that is to say, too late for a reply to be dispatched by that late-fee dispatch at 4.5, which means that a day would be lost in replying to that correspondence. There would be, of course, a corresponding loss of a day in a number of provincial towns—in all the Midland towns, in fact. As you get further off, the matter is less important, because at Glasgow, for instance, there would not be time to answer Continental letters the same day.

2663. So that with regard to the foreign postal service your opinion is that by no arrangement that could be made here, either in the way of increasing the shift of Post Office work, or by having some sort of an arrangement with the foreign Post Offices to post their letters earlier, this difficulty could be got over?—The increase of force would not be any remedy. Practically as large a force is put on now as can deal with the matter. It is dealt with as rapidly as it can be dealt with, and there is no margin of time which could be economised in order to compensate for the later arrival. As regards Continental dispatches, of course if the Continental dispatches and the times of all the trains all over the Continent and of the mail boats across Channel were altered twice a year, or eight times a year, that would meet the case; but I anticipate that that would have such serious results as regards business hours on the Continent that it would not be practicable to arrive at it.

Chairman—continued.

2664. We shall later on consider the question of the method of altering the time which might conceivably make some difference in your replies; but what I am anxious to get from you now is whether by means of an arrangement with foreign post-offices to secure earlier posting of letters, this difficulty might not be to a large extent obviated. Let me put it this way. Supposing that you came to an arrangement with foreign post-offices to post letters an hour earlier, do you consider that a large portion of your objections would be removed?—If an arrangement were made with foreign post-offices to post an hour or an hour and twenty minutes earlier, and with the foreign railways to run their trains an hour or an hour and twenty minutes earlier, and with the packet companies to run their boats an hour or an hour and twenty minutes earlier, then, clearly, the effect of the change of the clock would be counteracted as regards foreign mails; but as the time of the posting of letters and the time of running trains is not fixed arbitrarily, but fixed with regard to the business day, I anticipate that it would not be possible to arrive at such an arrangement unless the business day were altered.

2665. But as regards that, there are so many different collections of letters abroad, that it does not seem altogether impracticable, does it, to get earlier hours of posting, and consequently similar arrangements being made both by packet companies and by railway companies?—I can only infer what the possibilities would be in foreign countries by seeing what they are in this country; and I should regard it as absolutely impracticable to change the hour of posting for the principal provincial and Continental mails from 6 o'clock to 5. I think the City of London would rebel if we suggested such a thing.

2666. For instance, there is a post in Paris for England which leaves by the 8.30 a.m. train from Paris. I think that is the first day train from Paris. Perhaps you could tell us which is the first train service carrying letters from France to England?—The three principal mails from the Continent by the Calais route are those arriving in London at 5.30 in the morning, at 5 o'clock in the afternoon, and at 7 o'clock in the evening. There is also the mail to which I think you allude, which arrives at Charing Cross at 3.35 in the afternoon.

2667. That is the Boulogne and Folkestone train?—Yes.

2668. Does that carry letters?—It carries letters.

2669. That gets in at 3.35 you say?—At 3.35.

Mr. *Holt.*

2670. Could you give the hours of posting in Paris for each of the four deliveries whose arrival you have named?—The time of departure of the train from Paris which arrives at 5.30 in the morning is 9 o'clock in the evening, and the posting in Paris for that I should suppose would be up to 6 o'clock, but I have not the exact hour.

Chairman.

2671. There may be special posting?—There may

Chairman—continued.

may possibly be a late-fee posting; I am not sure to what extent they have that.

2672. That is the last hour of posting?—The time of posting, I understand, is later than six, probably something after seven; but I am afraid I have not the exact time. Then the train which arrives at 5.4 p.m. leaves Paris at 9.50 a.m. That practically means for business purposes posting the night before.

Mr. *Holt.*

2673. That is really no good for business purposes?—No; for social purposes no doubt it is. The train which arrives at 7.5 p.m. leaves Paris at noon. There might, therefore, be time by that to answer urgent letters arriving in Paris by the morning mail; but that arrival at 7.5 of course is no good for the business day here, and letters would probably fall into the next morning's delivery; so that there would be no advantage for business purposes in posting by that rather than the evening mail delivered early next morning.

2674. Supposing that a man in Paris wanted to do business with Liverpool or Manchester, he would get an advantage, because he would get delivery in Manchester or Liverpool the first thing in the morning?—Yes, he would get an advantage there.

2675. Which he would probably lose if that train was an hour or two later?—Yes.

Chairman.

2676. Does that finish your evidence with regard to foreign mails?—Yes, I think that is all as regards foreign mails.

2677. With regard to telegraph and telephone services inland, what do you wish to tell us?—There there would not be any service inconvenience, I think. At the moment of the change some adjustment of staff would be necessary, but the business of course is very light at 2 o'clock on Sunday morning, and I do not anticipate that there would be any serious inconvenience. If the clock time were changed as proposed and the same clock hours were kept for business purposes, the flow of telegraph traffic would probably be much the same as it is now by the clock. There would, however, be some change if the hours of daylight in the afternoon were used for prolonging cricket matches and other sports; that would mean that the telegraph business in the afternoon would be prolonged, and the staff of course would have to be on duty to deal with it.

2678. And as regards the International service, what do you say?—As regards the International service, at present, as the Committee are aware, our time coincides with that of Belgium and Holland, and differs by an hour from that of countries which use Mid-European time. The people who are in the habit of communicating by telegraph with the Continent are also in the habit of making allowance for the difference of clock time, and I should anticipate that they would soon accustom themselves to the changed time in summer, and that no serious inconvenience would be caused to them by the change of time.

Chairman—continued.

As regards the service, there might be a certain inconvenience in this way: at present the business day in Germany and other Mid-European countries being earlier than the business day here, the flow of telegrams inwards and outwards does not precisely coincide. The flow of telegrams inwards from the Continent is earlier than the flow of telegrams outwards to the Continent. That means, of course, more economical use both of the wires and of the staff than if the peak of the two curves coincided. If the clock time was altered so as to coincide with Mid-European time or to approximate to it, that probably would mean that the highest period of flow would more nearly coincide, and therefore some adjustment of staff would be necessary, and probably some increased expense. There would be, however, some compensation in the divergence that it would create between British and French time, which would act in the opposite direction, and would tend to create a difference in the flow where there is pretty nearly coincidence at present.

2679. Leading to less pressure of work?—Yes. On the whole I think the result would be to cause some inconvenience and expense, but not enough to be a serious consideration. In the case of telegraphing to more distant countries, inconvenience would undoubtedly be caused where the overlapping of the business days is slight, as in the case of America, which the Committee, I think, have had before them already. There is a large amount of telegraphing business during the period when the two business days overlap. If the two days no longer overlapped, that telegraph business would no doubt be interfered with, and I should conjecture that there would probably be a diminution of telegraphic traffic, because certain kinds of business now transacted would become impracticable. That, however, is a point that rather concerns the business point of view than the purely telegraphic point of view. I should perhaps add, as regards the question of the time which appears on telegrams from distant countries, that persons who telegraph to distant countries are already in the habit of making the necessary allowance for difference of time; and I do not anticipate that changing clock time would cause very serious inconvenience to them when they became accustomed to it.

2680. Does that conclude your evidence with regard to International telegraphic and telephone service?—Yes.

2681. Now what effect would the proposals of the Bill have upon the staff of the Post Office?—As regards the clerical staff, the effect would be much the same as it is in the case of businesses in general, except that a substantial part of the clerical staff of the Post Office already comes on duty at 9 or 9.30 in the morning and not at 10—some of it even earlier; some come on duty as early as 8 and 8.30, but the majority come on duty at 9, 9.30 or 10 o'clock.

Mr. *Pirie.*

2682. You said it would have the same effect as on business employees generally. Do you mean

Mr. *Pirie*—continued.

mean by that a beneficial effect or otherwise ?—I mean by that, that if they came on duty at the same clock time they would come on duty really an hour and 20 minutes earlier, and so far as that is beneficial or the reverse to persons employed in ordinary business, it would be beneficial or the reverse to persons employed in the Post Office. As regards the manipulative staff, the sorters and so forth, and the outdoor staff, the case is very different. There a very large number of the staff come on duty at early hours of the morning. Take the case of rural postmen, for instance; they, as a rule, start on their walks at 6 o'clock in the morning. That means that they have to come on duty at 5.30 or 5.45 to prepare their letters for delivery. In order to come on duty at that time I suppose they have to get up from three-quarters of an hour to an hour earlier; which means that they would have to get up somewhere between half-past 4 and 5 o'clock. If the time were put a hour and 20 minutes earlier, that would mean that they would get up from 10 minutes past 3 to 40 minutes past 3 by Greenwich time; and I should be very doubtful whether they would regard that as an advantage.

Chairman.

2683. Would they not automatically leave off work earlier ?—They would automatically leave off earlier, and so far it would be an advantage to them. A rural postman's day as a rule is an outward walk, and then an interval of a certain number of hours at the end of his walk, and then the inward walk in the evening with the collections; in some cases he arrives before dark, in some cases after dark; and so far as it is an advantage to him to arrive before dark the change of time might in some cases give him that advantage. I have no means of knowing what his sentiments would be, because there has not been time to consult the Post Office staff, but certainly I should doubt whether a man who comes on duty so early in the morning would regard the earlier hour of going off duty in the afternoon as compensating him for coming on duty at quarter past three in the morning, instead of an hour and 20 minutes later.

2684. As regards the indoor staff, what do you say ?—Then, as regards the indoor staff, in a great many cases the Post Office work is continuous throughout the 24 hours, and the work in the small hours of the morning is very heavy. I have had some figures prepared of the numbers of persons on duty at each hour of the day in the London postal service, at Manchester, and at Liverpool—I take three typical large places. I find that the number on duty at three o'clock in the morning is 1,850; at four o'clock, 2,500; at five o'clock, 4,000; and at six o'clock, 6,300; so that there are a very large number of men who are on duty at early hours in the morning who would certainly suffer if their hours of duty were made earlier still.

2685. Does that apply to the three offices, London, Manchester, and Liverpool ?—Yes, that is the total for the three offices, London, Mancheser, and Liverpool. Perhaps as a basis of comparison I may give also the number on duty at the busiest hour of the day. The busiest hour is six in the afternoon, and then the number on duty is 11,000; at seven o'clock in the evening, 10,500; at eight o'clock, 10,000; at nine o'clock, 7,800; and at 10 o'clock, 4,200. And also there are a number of duties in which a man is not on duty early in the morning, but where at the same time he would get no benefit from the earlier hours. For instance, a very common duty is from four o'clock in the afternoon to midnight, and I do not see that a man who is on that duty would derive any benefit from coming on duty at 20 minutes to three and going off at 20 minutes to 11. It would enable him to go to bed a little earlier, of course, and get up a little earlier; but as in any case he would get up by daylight, I do not know that the difference to him would be material.

Chairman—continued.

2686. You said just now that you had not had an opportunity of obtaining an expression of opinion from your employees. Might I ask if you are able, consistently with your duty, to say what method you would resort to obtain a definite general expression of opinion ?—I think it would be very difficult to obtain a satisfactory expression of opinion. It seems to me that in order to explain the proposals of the Bill, it would be almost necessary to arrange a series of lectures at all post offices; and without taking a very considerable amount of trouble to explain the proposals of the Bill, I do not think an expression of opinion would be of much value to the Committee. I think, therefore, that there would be considerable difficulty in getting any general expression of opinion in a form that would be useful.

2687. Have you anything to say as to the practicability of adjusting and readjusting the clocks according to the new measurement of time—I mean public clocks, of course ?—As regards Post Office clocks, I do not anticipate that there would be any serious difficulty. Orders would be given that the clock was to be changed on the appointed day. The system in the Post Office is that every morning at 10 o'clock a signal is sent to all telegraph offices, and they adjust their clocks by that signal. It would be simple, of course, on the Monday morning after the change is first made to send that signal at 9.40 by Greenwich time, and the clocks would be corrected to 10 o'clock according to that time. That would automatically correct any accidental omission to adjust the clock at the appointed time.

2688. Are your clocks at each of the head offices electrically synchronised ?—No, the signal is given every day, but the clocks are not, speaking generally, electrically synchronised.

2689. So that each clock, if it happens to be out of time, has to be adjusted separately ?—Yes. We have under consideration in some cases methods of synchronising. Perhaps on the subject of the staff I may add one point; that is, that I have no doubt that there would be a certain amount of unpunctuality on the days following the change; individuals would forget to correct their clocks and watches, and there might be a certain amount of inconvenience from that cause.

2690. As regards the methods forecasted by the Bill of making the change, have you any alternative

Chairman—continued.

tive proposals to make ?—If a change is to be made, I am very strongly of opinion that it would be advantageous that it should be one hour and not one hour and 20 minutes. That would have the advantage of making our time coincide with that of a large part of Europe, whereas a change of one hour and 20 minutes would destroy the coincidence with those countries which there is at present, and would not create a coincidence with others.

2691. It would destroy the coincidence with those countries that we have it with now ?—Yes. The change of an hour would do so, but it would create a coincidence with a larger number of countries than those with which it would destroy it.

2692. The Committee have had before them another plan, that is, to make a permanent alteration of one hour in the measurement of time. Have you considered that at all ?—A permanent alteration of one hour, it seems to me, would not meet the object which the proposer of this Bill, if I understand it rightly, has in view, which is, to make an adjustment so as to allow for a greater length of the day in summer without appearing to alter the social habits of the nation. Clearly, if you alter all the year round, you do not do that. It seems to me that that would be absolutely analagous to the device which has been frequently adopted, of debasing the currency for the purpose of counteracting high prices.

2693. Naturally it would have great inconvenience; but the idea with which it was foreshadowed was to avoid constant alterations in the measurement of time ?—Yes, constant alterations in the measurement of time undoubtedly present inconvenience; but if you get over the inconvenience by a method which cuts at the root of the object at which you aim, it seems to me it is not worth while. May I also add that if the change is made, from the Post Office point of view, it would be very desirable to have as few points of change as possible? If possible it would be much better to have a change made at one moment and not at four, supposing an hour were the amount of the change. If it were considered from the point of view of railways and other interests, that a change of an hour was too much to make at one time, then I would say have as few changes as possible : make it on two Sundays.

Mr. *Pirie.*

2694. Two half-hours ?—Yes, two half-hours. But from the point of view of the Post Office, certainly a single change would be very much to be preferred.

Mr. *Pearce.*

2695. You did not mention anything about Colonial and American postage at all in your general evidence. Do you want to say anything about them ?—In the long-distance services an hour one way or the other is not a matter of very great importance. I imagine that the sailings of the long-distance packet boats would probably without inconvenience take place at the same clock time as now.

2696. Then, with reference to European postal communications, taking your example of Liverpool, you suggest that if the business habits of Liverpool were altered in accordance with the proposal in the Bill, it would alter their time for reply to postal communications from France or elsewhere on the Continent ?—Yes.

Mr. *Pearce*—continued.

2697. But if they ignored the Bill and kept their own actual time of business, as they now do, for making their own market, then there would be no difference; they would still have the same time for replying ?—If the time of posting were made a different clock time. The case I had in view was the later arrival of the inward mails by clock time and the maintenance of the same clock time for posting.

2698. I follow that ?—It would, of course, be possible to make a later clock time for posting as well as for the arrival of mails, but only by a very considerable alteration of all the train services.

2699. Some alteration of all the train services ?—Considerable alteration of all the train services.

2700. For the carriage of the letters only ?—The trains which carry the letters, precisely; but the network of connections all over the country for that important service is so complicated and so large that an alteration of that kind means a very large amount of change, and not a small amount.

2701. Let me put it to you in this way. If you maintain the network of Continental postal arrangements in Great Britain at the same actual time as now, the effect of the alteration of the clock would only be to call those times by another name ?—Quite so.

2702. And the network of communications, receipts, deliveries, and replies and dispatches, and so on, would not be affected ?—But that overlooks the fact that the network that connects with the Continental services is not independent of the network which carries on the home service. The two work in very closely together; and if you let the one still run by clock time and regulate the other by real time, you still get a complete dislocation.

2703. I wanted to get at that very point. There is, of course, a working in of the home traffic with the Continental traffic ?—For instance, there are two travelling Post Offices which work in connection with the inward night mails from the Continent, on the London and North-Western and the Great Northern Railways. In those trains the inward Continental letters for provincial towns are sorted in the train. This economises time and enables them to be delivered early in provincial towns. But those travelling post offices also take inland matter as well; and if you run them by Greenwich time for the Continental mail services, then you throw out the work that they perform for the inland service.

2704. I follow; that was a difficulty that we wanted to get at, to see how far it operated. Can you give us any idea of the proportion between the European mails and the home mails ?—Yes. I have some figures on that point. The total number of articles dealt with in London weekly may be put at 48 millions, and of that total about $5\frac{3}{4}$ millions are Continental and foreign mails; that is to say, about one-eighth of the total correspondence, including letters, post-cards, book packets, and everything excluding parcels.

2705. We

Mr. *Pearce*—continued.

2705. We may take it roughly at one-eighth ?—Yes, one-eighth.

2706. Is that an eighth of 48 millions, or in addition to the 48 millions ?—It is included in the 48 millions.

2707. In speaking of the postal staff who come on duties as you have given us already, I notice that at six o'clock in the morning in those three towns there are 6,300 at work ?—Yes.

2708. And at six o'clock in the evening in those three towns there are 11,000 at work ?—Yes.

2709. And that is the maximum time ?—Yes, at five o'clock the staff is at the maximum; at six o'clock it is very little less.

2710. Apart from Continental traffic, if the home business hours were altered by the Bill, would not that afford an advantage to the 11,000, as compared with the disadvantage to the 6,000 ?—Not necessarily; because a large proportion of the 11,000 would come on duty at three or four o'clock in the afternoon, and would be on duty from three or four in the afternoon till 11 or 12 at night.

2711. Then a great deal of your work is arranged by shifts ?—The whole of it.

2712. Does that include all classes of employees ?—I am not quite sure whether "shifts" does not contain a meaning that I do not intend to give to that. The work is not divided, as some engineering work, for instance, is divided into three shifts, beginning at definite hours and ending at definite hours. The hours of duty are a very complicated arrangement, in order to have on duty at each particular moment the force required for dealing with the work at that particular moment; perhaps I can best answer the question by giving the numbers who come on duty during certain hours.

2713. I will not trouble you, if you will tell me whether any individual man has his length of time fixed for him, so that you do not employ him beyond eight or nine hours or more ?—Each individual man's regular duty is strictly limited to eight hours in the day, speaking generally, or seven hours at night. Seven hours at night is regarded as equivalent to eight hours in the day. It may be one continuous duty; he may be on duty, for instance, from four to midnight; or, in some cases, it may be a divided duty; he may be on duty four hours in the morning and four hours in the evening.

2714. Then, so far as the individual man is concerned, no change proposed by the Bill would affect his length of time at work ?—Generally speaking, no. It would, in some cases, throw into the night hours a portion of the duty which at present is in the day hours; and in that case he would get the benefit of the one-eighth reduction in the night hours.

Mr. *Richards.*

2715. You suggest that it would be practically impossible to get the Continental countries to post earlier. Why do you see such great difficulty, if we are likely to make a change in the same direction in this country ?—My impression is that it would be impossible to get them to post earlier, unless they made a similar change to that proposed here, which would place the business day earlier; the reason being that posting, generally speaking, is arranged with reference to the business day.

Mr. *Richards*—continued.

2716. Then there is no reason why we should not be as early as Continental countries. If we are now an hour behind them, there is no reason why we should not be an hour earlier than we are now, and be equal with them. One would think that we should often be chided in being behind Continental countries if it were not so ?—Each country hitherto has arranged its time as nearly as it can to the sun. I do not know that there is any ground for chiding in that.

2717. You made a statement about men getting up early in the morning—that is, the rural postmen ?—Yes, and a large number of town postmen as well come on duty in the early morning.

2718. What are the rural postmen's hours during the winter months ?—The same.

2719. If it be any advantage to the postmen, do not you think it is possible that your hours would be lifted—I mean the hour of finishing. If a change is brought about by this Bill, if we lift the day one hour and 20 minutes, will not that mean that your midnight post here in London would be at 20 minutes to 11, according to sun time ?—Yes, if the railway companies followed clock time.

2720. So that the operatives would get an advantage at the end of the day, whatever they may lose at the commencement ?—A man who is on duty from four o'clock to 12 o'clock would presumably be on duty, then, from 20 minutes to three to 20 minutes to 11; so that he would, in that case, have less free hours of daylight.

2721. But I am afraid you do not in the postal service make it convenient for a man to have a stipulated number of hours in bed ?—The rule is that a man's duty must be so arranged that he has nine hours at home between going off duty and coming on duty.

2722. And you do that as a regular thing ?—Yes.

2723. With good shifts I do not see how that there would be any difficulty. Of course there are a lot of industries who work on the shift system. Our police are very much engaged as your people are; they have to split their eight hours a day, and have two bites at it—a thing the men object to; but it is insisted that they shall have two bites. And that is very largely the custom with the ordinary postman ?—Yes; the point is that some men would be benefited in the amount of free daylight that they would have, and other men would be worse off in the amount of free daylight that they would have. I think that on the whole probably more would be benefited in the amount of free daylight than the reverse, but without very elaborate investigation it would be difficult to say.

2724. That is usually the outcome of all Acts of Parliament; it is intended that the majority shall benefit ?—Yes.

2725. And you think additional work is likely to be thrown on telegraphists by cricket matches in the evening, and so on ?—It would mean, I think, throwing later by the clock than it is at present a considerable amount of the afternoon Press work.

Mr. *Pearce.*

2726. I ought to have asked you: does that one-eighth proportion of the 48 millions include the mails from the Colonies and oversea?—It includes all mails from or to places abroad. I have not any exact figures as to the division between the Continent and other parts of the world, but I should think that a very large proportion are Continental mails. Very roughly speaking, the European mails are to extra-European mails as two to one.

Chairman.

2727. And these 48 millions represent inward and outward letters?—Yes.

Mr. *Holt.*

2728. I should like to ask you one or two questions. You did not say, but I presume you would think that Sunday would be the best day on which to make a change, if it were made?—Decidedly. The Monday morning mails are very heavy, because they include the Saturday night and Sunday postings, and although there is no business correspondence on Sunday, there is a great deal of social correspondence. From the purely Post Office point of view, the most convenient time would be noon on Sunday for making the change; but from the point of view of other interests, no doubt that would not be a convenient time.

2729. Let me ask you another question. The Continental mail service is a very fixed institution, is it not; there has been very little change in the time, and it has been very seldom changed?—Very seldom; there has been no substantial change for a large number of years.

2730. And you would probably find it a matter of extreme difficulty to introduce a change?—I think it would be a matter of great difficulty, because the hours are fixed with reference to business habits and the business day.

2731. So we may conclude that it is extremely unlikely that the Continental railway companies would agree to a general alteration of their train service twice a year?—That is my opinion, certainly.

2732. We may be practically certain that they would not?—I should think so.

2733. Therefore if this change were adopted in this country, we should practically have to make up our minds to receive our Continental mails an hour later during the summer months?—Yes.

2734. We should be very foolish if we did not make up our minds to that?—Yes.

2735. What the effect of that would be you have told us with regard to Liverpool; and I suppose that practically the same thing would apply to Manchester, Bradford, Leeds and so on?—Yes.

2736. The hours of delivery, practically, there are the same?—Yes, the same thing would apply to places at approximately the same distance from London, and there would be an analogous shortening of the time for dealing with Continental letters in places at other distances.

2737. Then practically all the letters coming from Paris and Northern France are delivered to what you may call the industrial part of England at about 1.30 on the day after they are posted?—Yes; in Birmingham, the Black Country, and that district it would, of course, be rather earlier. In Yorkshire and further north it would be rather later.

Mr. *Holt*—continued.

2738. And the people who get these letters, as things stand at present, have a reasonable time for writing a reply, and they have always an opportunity of telegraphing a reply, which would get delivered in business hours on the day they receive the letters?—Yes.

2739. But if this change were introduced it is improbable that they would receive their letters before 4.30?—At Liverpool the letters are delivered about four o'clock.

2740. That is to say, the delivery would begin about four o'clock?—Yes.

2741. But some people would not get their letters until nearly five?—That is so.

2742. And a similar state of things would apply to other towns?—Yes.

2743. Which would practically make it very difficult for people to answer letters by return of post, or to answer them by telegraph the same day?—Yes.

2744. They could not get a telegram to their correspondents on the same day?—No.

2745. Would it not also have the trifling disadvantage of preventing them from putting their remittances in the bank which come in letters which arrive the same day?—Yes, it would have that disadvantage also.

2746. In fact, if they wanted to answer their letters they would have to stay later themselves, and you would have to arrange a later postal service for them?—I think they would certainly demand a later postal service. They would demand, and it would be difficult, I anticipate, to resist the demand, that the outgoing mails should be regulated by real time and not by clock time.

2747. And if that happened they would lose all the advantages of the extra daylight, because they would have to stay to answer their letters?—Yes.

2748. Therefore the whole Bill, so far as they were concerned, would become nugatory?—Yes.

2749. You have told us about the French mails; would you mind telling us about the Dutch and German mails; what are their usual hours?—Perhaps I might take the case of Belgium first. As regards the Belgian mails the case is very similar to that of Paris. The mails from Belgium come by way of Ostend and Dover, and the night mail arrives in London practically at the same time in the morning—half-past five. In the case of Holland it is somewhat different. The main Dutch mail comes by Queenborough and Flushing, and that arrives in London too late for delivery by the first delivery.

2750. It arrives in London at about half-past seven or eight, does it not?—It arrives at 7.50 at Holborn Viaduct.

2751. Can you tell me when the delivery is?—That mail is delivered, I suppose roughly, at 10 o'clock in the City.

2752. And in the provinces, can you say?—As regards the provinces, it would be delivered at Liverpool, I think, at four o'clock.

2753. That is right; it is so?—And the same thing

Mr. *Holt*—continued.

thing would apply to other similar places, such as Manchester, Bradford, and Leeds.

2754. Does that include the German mail ?—The German mail comes partly by Ostend and partly by Flushing.

2755. Can you tell me, for instance, what is the time for people in Hamburg corresponding with England for posting and delivery ?—By the Queensborough and Flushing service the time of departure from Hamburg is 2.38 p.m.; that means posting about one o'clock, I suppose.

2756. And that mail gets to London for delivery at 10 or 11 next morning ?—Yes.

2757. Do you happen to know when does the evening post leave Hamburg ? What happens to a man who posts his letter at five o'clock at Hamburg ?—The Flushing mail, which arrives at half-past seven in the evening, leaves Hamburg at 11.20 p.m.

2758. And a letter posted at five at Hamburg is delivered next morning in London at one o'clock. If you post a letter at the end of the day's work in Hamburg that letter is delivered in London the next morning but one ?—No.

2759. Not next morning—the next morning but one ?—If it came by the Flushing route it would be delivered in London by the first post the next morning but one. I think the Hamburg mails would come as a rule by Flushing.

2760. At any rate it is quite clear that the whole of the opportunities of Continental correspondence would be most seriously curtailed ?—Yes, I think so.

Mr. *Pirie.*

2761. I want to ask you some questions on the point that Mr. Holt has just been dwelling on, the difficulties of non-connection with the Continental services. You said that the Continental services are at the present moment between Paris and London to a certain extent fixed institutions, and have been so for some years ?—Yes.

2762. Is it not the case, as regards the railway services between those two towns, Paris and London, that in the course of a few years the times for railway transit have been shortened on several occasions very considerably, and the journey now between Paris and London is much quicker than it was five years ago ?—I have not any figures as to the exact alteration of time, but whatever saving there is, is to a very considerable extent counteracted by the habitual late running of the service. The average time of arrival of the night mails in London is roughly an hour after the time-table time.

2763. Is not that service susceptible of great improvement; if, for instance, instead of sending the mails by the longest mileage as at present, namely, Calais and Dover, advantage was taken of the shorter mileage by the route between Boulogne and Folkestone ?—So far as I am aware the time of transit is not shorter by Boulogne and Folkestone.

2764. It might be made so, might it not, if the railway companies agreed among themselves to serve the interest of the public instead of taking the public over the longer mileage in their now interests ?—That is a railway question on which I

Mr. *Pirie*—continued.

am afraid I am not competent to give an opinion.

2765. You stated that a large proportion of the Continental mails arrived at the present moment at 7.50 a.m. at Holborn Viaduct ?—That is the Flushing mails.

2766. Exactly. Therefore the inconvenience which you laid some stress upon as regards the delivery to provincial towns exists to a large extent at the present moment ?—My point was that whatever time there is available at present for replying to a letter on the same day would be curtailed by the amount by which the clock was altered unless the times of posting are altered too.

2767. You do not think that it would be possible to improve the existing service between Paris and London so as to shorten the time, if the railway companies ran special mail trains and boats in view of the possible larger correspondence between the two countries ?—That, again, is rather a point on which I am not competent to give an opinion; but having regard to the unpunctuality of the present service, I should be very doubtful whether an acceleration of the time-table would be very advantageous.

2768. But surely with modern improvements, faster trains and faster boats, such as they have put on in the Channel service, there must be some radical improvement in the service compared with 10 years ago ?—I understand that on the French side the trains run at a very good speed, I think something like 50 miles an hour, if I am not mistaken; and on the Channel passage I do not suppose that there is more than a very few minutes to be economised. As regards the train service on this side, there may be possibly room for a slight acceleration. As I say, I am not an expert in railway matters, but I should doubt whether there is room for any material acceleration of the service.

2769. Could you state, as regards the mail services between Paris and London, the number carried by Dover and Calais and the number carried by Boulogne and Folkestone respectively ?—I am afraid that I have no figures on that point, but the bulk that comes by Dover is much greater.

2770. That is to say, the bulk comes by the longest route in the interests purely and solely of the railway companies ?—The bulk comes by the quickest route.

2771. Can you explain that ? If you look at your time-table of the time between Paris and London, you will find that the shortest journey is invariably the one between Boulogne and Folkestone, and the quickest journey—it stands to reason. The advertised South Eastern quickest journey is the First Class Mail Service between Boulogne and Folkestone ?—As regards the mail trains.

2772. I am not talking exclusively of mail trains, but as regards the passenger service ?—The mail trains are of course what concern us.

2773. I admit that; but what I want to ascertain is whether the Post Office is getting the best possible services under existing circumstances from the two railways which perform the service between Paris and London ?—Your question, I think, was whether the time-table by Boulogne is quicker than the time-table by Dover

Mr. *Pirie*—continued.

Dover. That I have not in my mind at present. It is so, I am told.

2774. Very much so. Another point that you laid special stress upon is the late arrival of the night mail from Paris to London in the morning ?—Yes.

2775. Is it not also the case that this night mail is the longest of the whole of the services (although it is the most important mail) in the 24 hours between Paris and London ?—The time is eight hours and 20 minutes. The afternoon service *via* Boulogne is six hours 45 minutes—that is quicker.

2776. And is there any reason at all why in place of this night service of eight hours and 20 minutes, if sufficient stress and importance was attached to it, there should not be a similar mail service at night between Paris and London which could be also carried out in six hours and 45 minutes, with a possibility of in future reducing it if you adopt modern methods ?—I presume that if a train can run in six hours and 45 minutes in the day-time it could also run in that time at night.

2777. A passenger train, and still much more so a mail train ?—Yes.

2778. Therefore I do not think I am wrong in coming to the conclusion that these difficulties are somewhat imaginary, or at any rate susceptible of being overcome ?—Whatever acceleration could be effected in the mail service would be so much gain to the commercial community; but whatever acceleration was obtained in that way would be obtained all the year round, and it would still remain the fact that the time available would be one hour and 20 minutes shorter in summer than in winter. If the service can be accelerated it ought to be accelerated quite irrespective of any change of the clock; and the point that we are looking at is the effect of the change in the clock in summer.

2779. The point we are looking at, you will excuse me, as dealt with by Mr. Holt, was the fact that the foreign mails would reach the provincial towns in England too late for the business day. I have endeavoured to point out that if the mails were accelerated as is possible, the provincial towns would still be served as capably as they are being served now ?—It would alter *pro tanto* the zone in the country which would be most seriously affected by it. It might be that if the alteration was sufficient, it would be Leeds that would be affected instead of Manchester; or, if the alteration was greater, it would be Newcastle; but there would at each place be that curtailment in summer of an hour in dealing with the Continental mails. Any acceleration of the mails would merely alter the zone of the country in which the curtailment would have a most serious effect.

2780. But the curtailment only has effect in proportion as it affects the loss of the business day or the loss of the business interval ?—Yes, it would mean that a different list of places would lose the business day than those which lose it at present, but there would still be places that would lose it.

2781. As regards the time of arrival of mail trains in this country, at the present moment the Post Office have often to deal with very late arrivals ?—Yes.

Mr. *Pirie*—continued.

2782. And they are able to adapt themselves to these late arrivals and overcome the difficulties of them ?—As regards London, a sufficient margin is left to allow of a certain amount of late arrival and still to deliver Continental letters by the first delivery.

2783. I am not talking of Continental letters just now; I am talking of the home mails. You do get over the difficulty of late arrivals ?—If the arrivals are late the letters are dealt with and distributed. There is a certain amount of public inconvenience; it means that the delivery is later.

2784. As regards the duty hours of the men, do the men always keep to the same duty hours, or do they take it either a week, or a fortnight, or a month about ?—There is almost every variety. There are some duties which alternate on alternate days, there are some duties which alternate by weeks, and there are other duties which alternate fortnightly.

2785. But a large number alternate ?—Yes. On the other hand, there are a large number of fixed duties. It is difficult to make a general statement, because the variety is so great.

2786. I had not the pleasure of being here at the outset when you gave your evidence. I do not know whether you expressed any personal views from your knowledge of the Post Office generally. If you could give them I should be very glad to know them ?—My personal views are that it is very desirable that people should get up earlier in the morning in summer; but it appears to me it would be far better to arrive at that result by a change of habits than by a change of the clock, which I should consider would be very likely to be discounted after a certain time.

2787. Then you are not of Lord Avebury's opinion, that to ensure a change such as you think desirable legislation is requisite ?—I would rather try the other method first. I see, for instance, no reason why in my own office, if there was a general desire to that effect, the hours, which at present are for the majority of my clerical staff in the office from 10 to five, should not be changed at once to from nine to 4 in the summer.

Mr. *Richards.*

2788. Or from eight to three ?—I should think if they were changed to from eight to three there might in some cases be difficulty as regards train service; but if a large number of offices agreed to change their hours to from eight to three, no doubt the railway companies would adapt themselves to it. It is not infrequent, I may say, where there are a considerable body of men coming in at some very early hour in the morning, as many of them do in our own service, that they go to the railway companies and say, "Will you not put on a train for us at such and such an hour ?" and very often, if the railway companies find that a sufficient number of men come, they put on a train to suit their hour.

Chairman.

2789. Do you suggest that to bring about a universal

Chairman—continued.

universal change of this description it would be at all practicable, or does it present any prospect of success, not to resort to legislative machinery?—It seems to me that a very large change could be brought about by voluntary effort, and that that has this advantage: that you can then change the people who want it and not change the people who do not want it. You have very large sections of the population who begin work at six o'clock in the morning, or even earlier, and it seems to me undesirable, for the benefit of those who would profit by a change in the clock, to practically force those who would not profit to be subject to the same change.

Mr. *Richards.*

2790. Some of them would strike if you do that; and you would not advocate a strike, surely, among operatives because employers wished to upset their constitutional dinner hour. It is an institution with them, and if they were going off work at all hours, and their sons and daughters, it would be intolerable?—I am assuming that it would not be done unless there was an opinion in favour of it among the workpeople themselves.

Chairman.

2791. I may point out that there is no element of compulsion in the Bill at all?—I quite understand that. There is this element of compulsion: that you would force people to accept the earlier hours unless they change their hours in winter and summer. If it is possible for them to change their hours in winter and summer for the purpose of avoiding too early an hour, it seems to me that it ought to be equally possible to change them for the purpose of avoiding too late an hour.

Mr. *Holt.*

2792. I might put it in this way, the effects of the Bill would be to throw the onus of making the change off people who are dissatisfied with the existing hours on to the shoulders of people who are satisfied with the existing hours?—Yes, quite so.

Mr. *Pearce.*

2793. Might I say that that would be equal to a common rule in favour of the change?—I do not quite seize that.

Chairman.

2794. Is there anything else you wish to say?—There is one small point that I forgot to mention, as regards saving the expense for light. It is difficult to make an estimate in the Post Office, but on the whole I do not think there would be any substantial saving. In offices which are open all night there would be practically no saving, and the number of offices where the work is heavy early in the morning is, perhaps, nearly as great as those where there is work in the evening; therefore the increase of artificial light in the morning would to a great extent, compensate for the saving of artificial light in the evening. I should therefore anticipate that the saving, at any rate, would not be an important matter.

Mr. *Pearce.*

2795. That is not a professional opinion; that is your personal opinion on a matter outside your usual avocation?—No, I am talking as regards the Post Office solely.

2796. I agree that the artificial light would not be affected there?—That is taking into account the hours of the Post Office.

2797. You said that you work continuously for 24 hours?—Yes; the work of course is not uniform in each hour of the 24 hours, therefore it does not follow that there would be no saving; but I do not anticipate saving any considerable amount.

Mr. *Pirie.*

2798. There is one small point that I forgot to ask you on the Continental Mail question. Do you know the reason why the shortest route, between Boulogne and Folkestone, two hours shorter than the Dover to Calais route, is not universally used for the Paris and London Mail Service?—With the present times of running of the trains there are various reasons for using the Dover Service.

2799. Although it is two hours longer?—The times coincide, for instance, with the Ostend Service, therefore the same train that takes the mails down for the Calais Service takes them down for the Ostend Service; whereas if we used the Boulogne Service it would want a different train. If the Railway Company would run the Boulogne train with quicker running at the same hour as they run the Calais train now, there is no reason why we should not use it.

2800. It is not on the Nord line, but if the South Eastern Company would run a special train to Folkestone the difficulty would be met. Calais has nothing to do with the Ostend Mails?—It has this to do with them: that both services start from Dover and start approximately at the same time, therefore the service from London to Dover serves both.

2801. We are agreed that the difficulty lies on this side of the Channel. If the South Eastern Company would run a special train to Folkestone, then the Boulogne and Folkestone Service would be the most desirable one for the Paris Mails?—There is a great deal more expense, of course, in running two trains than in running one.

2802. But if there was sufficient reason for it, twice in the 24 hours, one day service and one night service?—We do use the Folkestone Service, of course, for the afternoon Mail from Paris.

2803. But if the difficulty had to be got over of the two hours' longer service by Dover and Calais, there would be no insuperable difficulty in shortening it by two hours if you used the Boulogne and Folkestone Service?—I should not like to give a definite opinion on that point without examining into it more closely.

Chairman.

2804. I think we might summarise your evidence by saying that as regards the Home Service, whether postal, telephone, or telegraph, the inconveniences that you have detailed are so slight and so trifling that they might be considered negligible; that with a little extra expenditure the few

Chairman—continued.

few drawbacks that you mentioned might be easily got over ?—Yes.

2805. And as regards the Foreign Service, your opinion is that the dislocation which would be caused by the adoption of the principle of the Bill would be so overwhelmingly great that no adjustment of postal times abroad would meet the case unless foreign nations adopted the same principle as is foreshadowed in the Bill ?—Yes.

2806. I should like to ask whether you think there is any likelihood of foreign nations, at least those nations that are nearer to these islands, toeing the line with us in this respect ?—I am afraid that is a point on which I cannot form an opinion of any value. It seems to me that this consideration comes in : that the further South you go the less advantage there is in any change of the clock.

2807. I am more particularly alluding to places like Germany and the Northern latitudes ?—Yes ; also the further North you get the less it matters, because you have light all the time. But that is not a point on which my opinion would be of any value.

2808. You cannot tell the Committee whether France, for instance, would be at all likely to get on to Mid-European time in order to obtain some sort of coincidence with regard to working between these countries ?—No.

2809. You told Mr. Pirie that from the general point of view what the Bill seeks to do would be better done, or at all events it would be more expedient to attempt to do it, not by legislation, but by bringing about a consensus of opinion and of action ?—Yes, I should say that on that point I am giving my own personal opinion.

2810. We understand that perfectly ; but your personal opinion is that the advantages that would accrue from the Bill, or from what the Bill seeks to bring about, would be so overwhelmingly great that it might be advisable to try it, but not by legislative modes ?—I should be entirely in favour of trying to bring about a change in the direction desired (*i.e.*, earlier office hours in summer) by voluntary methods.

2811. Would you be inclined to say officially that, seeing the relatively small proportion of foreign correspondence, even this Bill might be advantageously promoted in Parliament ?—No, I should not say that. I think the importance of the foreign correspondence is considerably greater than is given by the relative bulk.

2812. Though mathematically the proportion of foreign correspondence is small, its importance is greater than that proportion would indicate ?—For business purposes I should think certainly that was so. May I add to your summary one other point : that if the change is made I am decidedly of opinion that from the Post Office point of view it would be better that it should be a change of one hour made in as few steps as possible.

Chairman—continued.

Mr. *Pirie.*

2813. But you still admit, with reference to the summary that the Chairman has given as regards the overwhelming difficulty, I think you said, in the case of Continental Mails, that you have not yet looked into the point of shortening the Paris to London Mail Service by the universal adoption of practically the shortest mileage route, namely, Boulogne and Folkestone ?—I said that it did not seem to me to meet the difficulty ; that if the Mail Service could be shortened it should be shortened all the year round, and the difficulty of curtailment of the time in summer would still remain, although the particular places that would chiefly suffer from it would be different according to the precise amount of acceleration obtained of the Mail Service.

2814. I am afraid I cannot follow you there. The number of places affected by it would become more and more remote, and therefore perhaps less important ?—Not necessarily less important.

2815. Less populated ? The greatest amount of Continental correspondence goes on with our large provincial centres, such as Manchester, Liverpool, and Birmingham ?—I do not know that Newcastle or Glasgow would care to be overlooked.

2816. Surely it is merely a question of losing the possibility of replying to a letter without the loss of a business day ?—Yes.

2817. If you can reduce this service between the two great centres, Paris and London, from what it is at the present moment an average service of 8 hours and 40 minutes to an average service of 6 hours and 40 minutes, the difficulty is overcome, is it not ?—Yes, it is overcome as regards certain places, but at all places you have a curtailment, and for people dealing with letters, at some places, though not the same places, you have the loss of a business day.

2818. And according to the radius of London there is always a certain radius, according to the rapidity of transit, which you must lose the advantages of ?—Yes

Chairman.

2819. I am sure the Committee appreciate the action of the Postmaster-General in deputing you to give evidence, and are equally appreciative of the very clear, admirable, and useful evidence that you have been good enough to give.

(*The Witness withdrew.*)

Sir WILLIAM H. M. CHRISTIE called in ; and Examined.

Chairman.

2820. You are the Astronomer Royal ?—Yes.

2821. Have you considered the scheme of this Bill ?—Yes.

2822. Both with reference to what it seeks to accomplish, and with regard to the methods

Chairman—continued.

by which it proposes to accomplish it ?—Yes.

2823. Will you kindly favour the Committee with your general opinion as regards the scheme itself ?—The fundamental difficulty it seems to me is that in this latitude the hours of daylight

are

Chairman—continued.

are too short in winter and too long in summer to fit in with the waking hours of the population generally, and that this is a matter which cannot be affected by an Act of Parliament. The question, therefore, of the apportionment of the hours of labour to the hours of daylight so as to make the best use of them, whether in winter or in summer, in my view is a question that should be settled by the various classes of the community concerned without any juggling with the uniform measurement of time which is the basis of the whole of our life. It seems to me that really the question of reckoning the time has not been sufficiently considered by those who propose to put 40 minutes in one hour and 80 minutes in another hour. I would particularly emphasise the various classes of the community that I go on further to speak of, who would be best suited by having different hours adapted to their particular work. I take it that it is quite within the competence of Parliament to regulate by legislation the hours of labour in the interests of any particular trade which may desire to make a better use of daylight. I take it that this Bill is chiefly in the interests of clerks in banks and commercial offices, shop-keepers, and publicans possibly—I mention those particularly; but not in the interests of those working men who start work at six o'clock in the morning. My view is that this object may be secured without any resort to this device of altering and upsetting the uniform reckoning of time by shortening four arbitrarily chosen hours in April and lengthening four others in September. Such a tampering with the fundamental principle of time reckoning, which regulates not merely our own life, but also our relations with the rest of the world, would have far-reaching consequences, which do not appear to have been sufficiently considered by those who have accepted this scheme as the only way of securing what they desire in the abstract. My view is that this ideal of early rising may be secured in other ways. Taking our own social life first, all the trades now starting work at 6 a.m. would have to start at 4.40 a.m. Greenwich mean time in the summer months. According to this Bill 6 a.m. would be two minutes before sunrise at Greenwich, on the 27th April, which is the fourth Monday in April this year; 41 minutes before sunrise on September 5th, which is the first Saturday in September; 31 minutes before sunrise on September 12th; 23 minutes before sunrise on September 19th; and 13 minutes before sunrise on September 26th. Throughout the summer months work would start shortly after or a little before sunrise in August—it would be a little before sunrise in the greater part of August—and artificial light would be required in factories generally, to supplement the dim light of early morn. Would the great mass of workmen engaged in these trades, if the case were put to them clearly, prefer to get up and go to their work in the hour immediately preceding sunrise? This is admittedly the most exhausting hour of the whole 24, the chill of night being at its maximum before the rising of the sun brings life into the day. I may explain that the minimum temperature is in the summer months at about 4 o'clock a.m.—we can only go to the nearest hour, which is about the time

Chairman—continued.

of sunrise or a little after if anything; and in the winter it is before sunrise; in mid-winter the latest time is about half-past six to seven in the winter months. Throughout the summer months a workman starting work at 4.40 a.m. Greenwich mean time would have to go to bed in broad daylight—7.40 p.m. Greenwich mean time—if he is to get eight hours' sleep with an extra hour for getting up and going to his work. Sir George Livesey has expressed the views of his workmen on the question of starting work earlier in summer, and it would be advisable to have the views of workmen in other trades before attempting to force on them by a transparent device an alteration of their hours which would involve their going to bed in broad daylight all through the summer months and getting up before sunrise all through the year instead of in the winter months only.

2824. When did you say that the sun rose on the 1st of August?—I did not mention the 1st of August.

2825. What date in August did you mention?—In the latter part of the month of August. On the 10th of August the sun rises at 4.40.

Mr. *Pearce.*

2826. Greenwich time?—Yes, at present, which would be 6 o'clock by the varied time reckoning; and from that time onwards the work which now starts at 6 would start before sunrise. I should point out here that so far as I am aware—I can speak to that, I think—for something like an hour after sunrise artificial light would be required in factories. The light in the early morning, as in the evening, is very much dimmer for the first hour of the day than it is afterwards. I think that is a consideration which should be borne in mind as affecting the question of the saving of gas.

Chairman.

2827. That would materially affect factories?—In my view, it would.

2828. It would not affect banks or railway stations?—I am speaking of trades which commence work at six in the morning. That is a very large section of the population. As regards banks, I should deal with them otherwise, and I shall speak of them afterwards. I would pass on to the other question of the other class, the shop-keepers and clerks in offices, the commercial classes. I would point out first of all that the success of the movement for the voluntary closing of shops on one afternoon in the week shows that shopkeepers can combine when they wish to modify their hours of work, and the workmen in other trades which are better organised would doubtless do so, if they desired a change of hours. As they do not appear to have taken action with a view to starting work earlier in summer, it may be presumed that their present hours, on the whole, suit them best. As regards those engaged in offices, the hours of daylight before work commences may be, and frequently are, utilised by early risers for recreation, and it is a question whether those concerned would prefer to play before their work, in the morning air, when they are fresh, or to play after their day's work in the shades of evening. I can speak from my knowledge

Chairman—continued.

ledge in that case, of a number of men who before going to business in the morning play golf, or have a swim, or adopt various forms of recreation, which they cannot get after their work. They do it before their work, instead of after. In our own case, at the Royal Observatory, the office hours for the scientific staff, now numbering 47, were formerly from 8.30 to 3 in summer, and from 9 to 3 in winter, continuously, without any break for lunch. They were different in summer and winter—they started half an hour earlier in summer.

2829. And what are they now ?—A change was made at the beginning of 1892, when, after consultation with the assistants, the hours were modified, and are now from 9 to 4.30 with an hour allowed for lunch. Thus office work is started an hour or more earlier than in London Government Offices.

Mr. *Pearce.*

2830. That is all the year round ?—Yes, that is all the year round ; and there is ample daylight for recreation after 4.30 in the summer months. My staff have a lawn tennis club, and they play regularly.

2831. That is 47 persons ?—Yes. It is only in the winter months that there is any difficulty in this respect, and this would not be met by the Daylight Saving scheme. I have, however, met it to some extent by a little relaxation, which allows of their playing hockey two days a week, and we have a very prosperous hockey club in consequence. I may mention another case that I deal with. While the usual hours of work in the engineering trade in this neighbourhood (that is Greenwich) are from 6 a.m. to 5.30 p.m., the workmen in one factory which I know prefer to start at 6.30 a.m. and work to 6 p.m. The tendency, therefore, seems to be rather in favour of starting later, although it is accompanied by the objection that they have to go on later.

2832. Is that all the year round ?—Yes, that is all the year round. This is a firm that does a great deal of work for the Observatory. Another point is that the two former Royal Astronomers for Ireland (Sir Robert Ball and Mr. Rambaut), who have given evidence, have not succeeded in persuading their countrymen of the advantages of early rising, which might have been secured by substituting Greenwich for Dublin time, the Irish clocks being thus put 25 minutes forward once for all, a less drastic remedy for late rising in Ireland than that proposed in the Daylight Saving Bill. That is a change that would be very much to be desired for the sake of uniformity of time reckoning ; but the Irish people do not seem to take to it, as it would involve earlier rising. That is my evidence as regards our own social life.

Chairman.

2833. As regards our relation with the rest of the world, what do you wish to say ?—Greenwich mean time has been adopted as the basis for time-reckoning throughout the world with one or two exceptions. I have an enclosure showing the standard time adopted in all countries

Chairman—continued.

of the world ; the two exceptions are France and Russia. The French were quite prepared to accept it 35 years ago, but our Government did not meet them properly, and it fell through. This "Hourly Zone System" was first introduced in the United States and Canada in November, 1883, five standard times, exactly 4, 5, 6, 7, and 8 hours respectively later than Greenwich mean time, being substituted for the 75 different local times then in use on the American railways.

2834. Five standard times ?—Yes, five standard times. The Continent was divided into sections.

2835. Does not that argue that all establishments and measurements of time are arbitrary arrangements ?—Yes, certainly.

2836. And that the object is to conform to the convenience of the public. These arbitrary establishments of time are arranged in order to be consistent with the convenience of the public ?—For inter-communication, not for the public at the places—not for the inhabitants of any particular places, because they have to change their time. But that change was made once for all and it caused a certain amount of confusion, and a good deal of difficulty. There were legal difficulties, about which I was consulted at the time, as to the question of the hours which would be defined as hours of burglary, for instance—during the night hours ; what would be the the night hours. There might be three-quarters of an hour difference from the local time in the standard time that was adopted.

2837. You consider that there is nothing arbitrary in the measurement of time which is based on the meridian ?—It is based on Greenwich time.

2838. Which you do not consider an arbitrary time ?—No, Greenwich time is not arbitrary ; but formerly in England the local time was the time in use, which is the time defined of course by the passage of the sun across the meridian of the particular place, and that would differ some 20 minutes from Greenwich time in the West of England. It was only through the extension of railways all over the country that they, as a matter of necessity almost, as a matter of convenience, adopted Greenwich time, and so carried it through the country ; and for a number of years the Church clock used to have two hands, one showing Greenwich or railway time, and the other local time. It was only in 1880 that the Act was passed constituting Greenwich time as the legal time for the country, unless otherwise expressed ; but it is still quite optional ; it is open to anyone to use local time if he defines it as such in any legal instrument or deed, just as it is in the present Bill.

2839. That comes to saying that Greenwich time in Devonshire is an arbitrary measurement of time only ?—No, I do not think it is an arbitrary measurement.

2840. It is an artificial measurement ?—It is an arbitrary commencement ; it is an artificial epoch of time ; it starts from an arbitrary epoch ; but that is a different matter from the measurement of time. The hours are all of the same length.

2841. But it is a measurement based upon the passage of the sun across the meridian ?—No, it is not.

Chairman—continued.

2842. I only mention that to show that legal devices have to be resorted to in order to obtain the greatest sum of convenience for the general public ?—I am quite in agreement with that.

2843. The idea of the Bill is not altogether so unreasonable as it might, on the face of it, appear ? —No. My view is rather that it does not obtain the greatest convenience—that is really my argument here: that it will cause a great deal of inconvenience; and the question to my mind is, what convenience results from it. I am obliged to enter into the history of this somewhat, because it may not be present to honourable Members here, or to others.

2844. You said that this Bill would be likely to conduce to the benefit of clerks and public-houses ?—I mentioned publicans as another case, because I think the hours of opening public-houses or of closing them would very materially affect, from what I have observed, the habits of the population; that if the public-houses were to close earlier, people would go to bed earlier. That is what I have observed in country places, where they close at 10 o'clock.

2845. But it would not conduce to the business prosperity of the publican, if he has to close earlier ?—I have not considered the business prosperity of the publican. I am only speaking of the hours of labour. I mentioned publicans merely because it seems to me that this Bill is specially in the interest of clerks and shopkeepers.

Mr. *Pearce.*

2846. Omitting publicans ?—Yes, and publicans.

2847. Now you omit them ?—No; I say that it is competent for Parliament to legislate and fix the hours of labour.

2848. Your statement was clerks, shop-keepers, and publicans ?—It is within the competence of Parliament to regulate by legislation the hours of labour.

2849. But that is what you said about the classes for whom the Bill was drawn ?—I did not mean to say that, then.

2850. Will you kindly repeat it again ?—It is within the competence of Parliament to regulate by legislation the hours of labour in the interests of any particular trade which may desire to make a better use of daylight, *e.g.*, clerks in banks and commercial offices, shop-keepers and publicans. Whether they desire it or not it is competent for Parliament to regulate the hours of labour.

Chairman.

2851. You mean the workmen, the employees in the public-house ?—Yes.

2852. Not the publican himself ?—Yes, that is what I mean. I did not mean the actual publican.

2853. Will you please go on ? You had come to the hourly standard zone ?—About the same time, in October, 1883, an International Conference of delegates at Rome recommended to their respective Governments the unification of longitudes and time—"in the interests of commerce and international communications," that was the reason given by them—by the adoption of Greenwich as the initial meridian, from which longitudes and time were to be reckoned. In accordance with these recommendations, standard times based on Greenwich mean time have been adopted by foreign nations, who trusted to the fixity of the Greenwich meridian for time reckoning. I gave a personal assurance that the Greenwich meridian for the reckoning of time could be trusted as being fixed, and I feel strongly that if this Bill passes I shall be rather ashamed of showing my face to my foreign friends who discussed the question with me. Any alteration of this basis for time throughout the world should be the subject of an international agreement.

Chairman—continued.

2854. Do you see any likelihood of that being brought about ?—I do not think it is likely.

2855. You do not think the advantages are sufficiently obvious ?—No, I think not. My view is that a change should not be introduced in this country without consulting foreign nations who have paid us the compliment of adapting their time system to ours. If we upset our own time system without consulting them, they must either alter their time system in accordance with ours, if it is based on ours, or else give up the connection between us and sacrifice the advantages aimed at.

2856. I put it to you whether you consider that any advantage is likely to accrue from the Bill sufficiently important to render likely the prospect of any arrangement being brought about internationally ?—I do not think there is much prospect of it, for this reason: that the social habits of foreign nations differ considerably from ours. Take the case of Paris; there the commercial classes start their work very much earlier in the morning, and carry it on longer too. This Bill, I take it, aims at making an alteration in our social habits by the device of altering the time from which we reckon; and I do not anticipate, I do not think there is much probability, that foreign nations would adopt that view; they would say that they have their own habits and they do not want to alter their time, that their habits are adapted to the time reckoning of the country.

2857. Surely those habits were very largely affected, then, when foreign nations adopted Greenwich time ?—They were affected to a small extent—it is a fraction of an hour—but they have been affected no doubt; and that has led in some cases to a change in office hours and working hours, but the change has been always considerably less than ours, generally within half an hour, and it has been effected once for all. There has been a dislocation, but it is not a continual dislocation, from four dislocations in spring and four in autumn, which is a very different thing from making a change once for all.

2858. We will come to the method later, if you will kindly finish your general evidence ?—The circumstance that the fundamental changes proposed in this Bill have been seriously considered by the House of Commons is in itself likely to have a prejudicial effect on foreign Governments, who had relied on the stability of British institutions. As I have mentioned, France has up to the present stood out. In 1883 the French Government were quite prepared to accept the Greenwich meridian, and General Perrier, the head of the Service Géographique, came prepared to alter the French maps to the Greenwich meridian and also

Chairman—continued.

to adopt Greenwich time; but there were difficulties arising from our antagonism to the metrical system; the French wished a little complimentary recognition of it, which our Government was not prepared to give; and the result was that they withdrew; whilst other nations adopted Greenwich time they stood aloof. Since then it has been proposed on two or three ocassions to adopt Greenwich time, and a Bill has been nearly carried through the Chamber of Deputies, I believe, but other circumstances probably have interfered. The feeling between the two countries was not then so cordial as it has since become, and there now seems to me to be considerable likelihood that the French will adopt Greenwich time as showing their good feeling towards this country. But if we proposed to alter Greenwich time in this way, or rather not to alter Greenwich time, but to alter our time of reckoning in this way, it seems to me unlikely that they would have anything to do with it.

2859. Assuming that the principle of the Bill was good one, how would you suggest proceeding in order to give effect to it? What method would you be in favour of —a gradual alteration of the time as forecasted in the Bill, or one single change?—I cannot say that I am in favour of any method of altering the time; it is absolutely opposed to my fundamental principle of time reckoning, to alter time backwards and forwards. An alteration once for all I can understand.

2860. A permanent alteration?—Yes.

2861. Have you anything to say as regards that? —It has been proposed to alter the time by one hour exactly, and I would say that there is less objection to having an alteration of an hour, because the minutes and seconds are the same, and it is easily remembered; but the proposal to alter the time in summer by an hour is objectionable for the reason that I have stated; and the watch and clock makers generally, I believe, think that if this alteration were made once for all it would be less objectionable. Then the difficulty arises that in winter we should have to alter our times of work; we should be rising too early—in the dark of night—and therefore in many trades, as is the case now, they would have to start work an hour later in order to make up for that hour that is added in the summer.

2862. Not necessarily. You could have two time-tables, one for summer and one for winter, just as the railway companies have several time-tables for different seasons of the year?—Yes; that is really what I am saying—that you would need to have a different time-table in the winter; but then that comes to this. If you make a permanent alteration of an hour, putting the time forward an hour to suit the summer and then you need to have a different time-table in the winter, why should we not have a different time-table in summer and make no alteration in our time? Could not that be effected just as well by starting work an hour earlier in the summer?

2863. The point is that it is difficult to obtain universal acceptance of such a plan. If you could do that it would render this Bill otiose and useless; but the idea is that you cannot get any general

Chairman—continued.

universal acquiescence in a change of this description unless the legislative machinery is resorted to?—In the first instance I would ask: Is this change universally desired, or is it not a desire that is confined to a very small section of the community; that is the point I put. Do the workmen desire it; do they wish to begin work earlier than six o'clock in the morning?

2864. You will be asked about that a little later by one of our colleagues, who is authorised to speak on their behalf.

Mr. *Pearce.*

2865. I notice that you say that Greenwich mean time is not arbitrary, by which I mean not arbitrary in any unpleasant sense; but do you say that Greenwich mean time is not artificial? —I do.

2866. How is that?—It is defined by the passage of the sun across the meridian after correction for the inequality of its motion.

2867. After correction for the inequality of the sun's motion, or rather of the earth's motion? —Yes, of the earth's motion.

2868. Does not that correction make Greenwich mean time an artificial thing?—No, not at all. Greenwich mean time is the reckoning of the uniform rotation of the earth.

2869. Is that uniform?—The rotation of the earth is absolutely uniform; it is the only means of reckoning that we have. The apparent motion of the sun is not uniform.

2870. I agree. The uniform diurnal revolution of the earth is not used for the measurement of time at all, is it?—Yes, it is used at Greenwich and other observatories for sidereal time.

2871. At Greenwich?—Yes.

2872. Anywhere else?—At every observatory.

2873. At every astronomical observatory, you mean?—For sidereal time.

2874. That is what you call sidereal time?—Yes.

2875. For what purposes?—For astronomical purposes.

2876. But not for navigation purposes?—Yes.

2877. Oh?—The passage of the sun is taken as apparent noon.

2878. The point I am upon is whether Greenwich mean time is an artificial thing or not. I am only seeking information. Does Greenwich mean time express the time of the revolution of the earth on its axis?—The full term is "Greenwich Mean Solar Time."

2879. Anything that is a mean or an average is an artificial arrangement, is it not?—It depends upon the sense in which you use the term "artificial." It cannot be altered—it is defined perfectly, and it cannot be altered.

2880. I am not suggesting whether it can be altered or not; but it is a convention. Any mean or average is a human arrangement. For instance, the very selection of Greenwich as the place of observation is an artificial human arrangement?—Yes, in that sense it may be called artificial.

2881. Take the three words. The selection of Greenwich is an artificial convention?—Yes.

Mr. *Pearce*—continued.

2882. A mean is an artificial averaging of diverse time ?—Yes.

2883. Time itself is measured by artifice ?—No.

2884. What is time measured by ?—Time is measured by the rotation of the earth—that defines it for us. The whole thing can be measured by the passage of a star.

2885. Will you tell me that again. What do you say time is measured by ?—Time is measured by the rotation of the earth on its axis.

2886. The adoption of that measurement is a human arrangement ?—So is everything. The adoption of our life is a human arrangement, if you like to call it so.

2887. When you say that Greenwich mean time is not artificial, I now understand what you mean by that; I do not agree with you, that is all; but that does not matter. You approve of the hours zones ?—Yes.

2888. Yet they make an artificial time, differing by $7\frac{1}{2}$ degrees west or east of the hour line ?—Yes.

2889. That is for the convenience of the community ?—Yes.

2890. Particularly of the railway community ?—Yes, railway and telegraphs.

2891. That is a longitudinal arrangement—that is an arrangement with reference to longitude ?—Yes.

2892. If there were any great convenience in making a convention in relation to latitude, you would not object to that, would you ? If there were any great convenience ?—There cannot be a convention in latitude for time—time would not be affected by latitude.

2893. I do not say that it would. But if there would be any great convenience by a convention as to latitude, you would not object to that, would you ?—I do not understand what it means.

2894. It does not matter if you do not understand it, I do not expect you to give an opinion on a thing you do not understand. By the bye, you have given us an opinion on the views of workmen ?—Excuse me, no; I say that their views should be ascertained.

2895. But you have given us an opinion on the views of shop-keepers ?—No.

2896. You have given us an opinion of what is desirable for shop assistants ?—No, I do not think I have said anything about what is desirable. My point is that they are in a position to combine if they wish. That is all. My illustration about early closing on one afternoon in the week was simply to show that they can combine to have some common arrangement among themselves.

2897. You have expressed the views of the watch and clock makers ?—Yes, I expressed that from the statement of the British Watch and Clockmakers' Guild.

2898. Oh! where ?—I get that from the *Horological Journal*, in a resolution passed by them. They held a meeting in connection with this matter.

2899. You refer to the gentleman whom we have had here ?—Possibly.

2900. You have given us an opinion about the engineering hours of labour ?—I have merely mentioned what I know is the fact in one case.

Mr. *Pearce*—continued.

2901. And you deduce from that the whole thing ?—Not at all—it is merely an illustration of how the hours of labour may be varied by common consent—by trade consent in a particular factory.

2902. If a common rule should be agreed upon for the whole Kingdom, you would not object to that, would you ?—For any particular trade ?

2903. If a common rule should be agreed upon for the whole Kingdom, you would not object to that for the hours of labour ?—If you mean that everybody should begin work at the same time throughout the Kingdom, I should object.

2904. You would not conform to it ?—I should not be prepared to conform to it. In my own office I have fixed office hours to suit our own conditions, and in other offices they fix other hours.

2905. And you are willing that they should ?—Perfectly.

2906. So that, if we all agree to alter our clocks, you are willing that we should ?—That is another matter—that is not fixing the hours of labour.

2907. But I am asking you, if we all agree to alter our clocks, are you willing that we should ?—The question is whether we are all willing.

2908. I am assuming that ?—Well, I am not willing. That settles it, I think. You cannot say we are all willing; and I know a good many men who are not willing.

2909. You mentioned two Astronomer Royals of Ireland, and you taxed them with not bringing this about in their own country ?—No, I did not tax them with it; I only say that their countrymen were not willing to rise earlier.

2910. You say that they have not brought about this change ?—I know that they have tried to do so.

2911. Have they tried ?—Yes, Dr. Rambaut has tried, and he is grieved that he has not succeeded.

2912. That was an endeavour to bring Ireland within Greenwich mean time ?—Yes.

2913. Longitudinally ?—Yes, for the sake of uniformity.

2914. And they would not agree to that ?—No; at any rate, it has not been carried out.

2915. You know as regards that Act of Parliament to which you referred, of 1880, that Greenwich mean time does not apply to Ireland—Irish mean time is Dublin mean time ?—Yes.

2916. And Dublin mean time is 25 minutes West of Greenwich ?—Yes, 25 minutes, 21 seconds.

2917. And that applies all over Ireland, however far west Ireland goes ?—Yes.

2918. And that is an arbitrary arrangement ?—Yes.

2919. Just as Greenwich time is arbitrary ?—The adoption of Greenwich time throughout Great Britain is an arbitrary arrangement, but at Greenwich it is not arbitrary.

2920. I am suggesting to you that all you have said with regard to any other trades, professions and occupations than your own, is not more than opinion ?—Quite so. My view simply is that

Mr. *Pearce*—continued.

that other trades ought to be consulted; I do not profess to speak for them.

2921. Do you suggest that the Committee have not consulted other trades?—The question is what are the terms of reference.

2922. No; I was asking you: do you suggest that the Committee have not consulted other trades?—I suggest that the case has not been clearly put before them that they would have to rise before sunrise, and that they would have to go to bed in broad daylight—that what they gain at one end of the day they lose at the other.

2923. I think you expressed the opinion that working hours generally are from six o'clock?—No, I was speaking of those trades in which the hours are from six o'clock; I do not say that that is so generally.

2924. Do you know what trades begin to work at six o'clock in the morning?—The engineering trade, in my neighbourhood, I know.

2925. Would you be surprised to know that they do not?—Yarrow's, for instance, what time do they begin?

2926. Do you know?—I know that they begin at six.

2927. Where?—At Poplar.

2928. Is that the only case from which you judge the hour at which all people begin work?—I did not say that all people begin work at six.

2929. But you spoke of the engineers, and you said they all began work at six?—No, I have carefully avoided saying anything of the kind. I say in my neighbourhood, I know of some cases.

2930. What I am aiming at—not unkindly at all—is this. You, as an astronomer, have expressed an opinion upon the hours of labour in all other trades?—Excuse me. I have not expressed any such opinion. I have merely pointed out that if they begin work at six o'clock in the morning, in any trades where they do so, they would have to start at certain times of the year, under this new reckoning, before sunrise.

2931. You think so?—I certainly say so if this Bill is adopted. As an astronomer I am able to say that.

2932. Let me have the benefit of your opinion about this. Assuming that the change is made of only an hour, and that the change only extends from the 1st of May to the 1st of September, the four summer months, workmen then beginning an hour earlier than they now do would be beginning in daylight?—They would be beginning work in daylight for part of the time

2933. The whole of the time from May to September?—To the end of September?

2934. No, to the beginning of September. From the 1st of May to the 1st of September. If a change of one hour were made in those months would anybody begin work before sunrise?—Yes, they would begin work before sunrise in the latter part of August.

2935. Do you say so?—Yes. If a man began work at 6 o'clock—you understand I do not define the hours of work, but I say that if he began at 6 o'clock it would be before sunrise.

2936. When is sunrise at the end of August—the 31st August?—At 5.12, which would be 6.12; so that he would begin work at 12 minutes before sunrise.

2937. On the last day of August?—Yes, and for some days before.

2938. For how long before?—A few days before; but that is not the proposal before me.

2939. But it is what I am asking you about—a proposal to make a change of one hour during the summer months. Taking the 23rd of August, when the sun rises by Greenwich mean time at 5 o'clock, and under the new operation would rise at 6 o'clock, will you agree with me that it is daylight long before then?—It is twilight—it is not full daylight. There is not sufficient daylight to work in factories without artificial light. I can mention that because it is within my own knowledge. On a perfectly clear, cloudless morning we cannot get the sun to register on our Sun Register within half an hour of sunrise. The register fails from the absorption of the light by the atmosphere—there is a great falling off in the light in that way.

2940. There is available light which you call twilight before sunrise?—Yes, it is not dark, of course.

2941. You have some objection, I think, to shortening the hours from 60 minutes?—Yes.

2942. When was the 60 minutes to the hour settled?—I really cannot say.

2943. Do you not know?—It is ancient history.

2944. Very ancient history, is it not?—Yes.

2945. How long?—It acted from the time of the Greek astronomers—that is not a thing I carry about with me, that is a question of history. As a question of history I do not know what the Chinese adopted.

2946. Never mind what the Chinese adopted just now; but did the Greeks use hours of the same length all day all the year round?—I am not prepared to say that.

2947. Will you take it from me that they did not?—They worked from sunrise to sunset, and the Romans did.

2948. And the Greeks before the Romans?—Probably.

2949. And the Chaldeans before the Greeks?—Very possibly.

Mr. *Holt.*

2950. If I may interpose, I think all these ancient astronomers suffered from very serious delusions as to the state of the heavens?—Yes, the whole time-reckoning was very hazy then.

Mr. *Pearce.*

2951. Mr. Holt is very able and his turn will come. I want to get at the sacredness of the hour?—I am not concerned with the sacredness of the hour, but I am concerned with the sacredness of the uniform reckoning of time—whether we reckon it by hours or by tenths of the day or by any other fraction.

2952. By which you mean the length of time of the revolution of the earth on its axis?—Yes, that is it really, that is not an ambiguous term.

2953. You start your day at noon, do you not?—For certain astronomical purposes time is started at noon.

2954. And you reckon your 24 hours right round the clock?—That is only for certain purposes.

Mr. *Pearce*—continued.

2955. Is that so ?—For instance, for meteorological observations we reckon by civil reckoning, and also for our magnetical observations.

* *After a short adjournment.*

Mr. *Pearce.*

2956. I do not want to trouble you much further. Will you explain to us what day is in use at Greenwich Observatory ? There are several days in use there, as I understand. There is the sidereal day, and the solar day ?—Yes.

2957. And Greenwich mean time ?—The solar day and the Greenwich mean solar day.

2958. And they, of course, differ ?—Yes.

2959. When you are dealing with clocks and watches all over the country, what is it that you transmit to them ?—Greenwich mean solar time.

2960. That has become an important matter, has it not, of late years ?—Yes.

2961. Would you like to say anything about it ?—I should like to say that the accuracy of time-keeping throughout the kingdom has been secured by the distribution (through the Post Office Telegraphs) of time signals from Greenwich exactly at the hour—to post offices, railway stations, and private subscribers. This system, which it has taken years to develop, would be dislocated by the dual reckoning of time, Greenwich mean time for time-balls and purposes of navigation generally, and variable time for the general public. The Greenwich time signals are sent out automatically at the exact hour, being regulated by astronomical observations, and they would thus be received 20 minutes or 40 minutes past the variable hour from April to September. There would be difficulty in working the system of synchronizing office and other clocks by hourly signals from Greenwich, which has been in general use for many years. That system is different in action from ours, and it would have to be altered if the Greenwich signals came at 20 minutes past the hour or 40 minutes past the hour.

2962. But not if the alteration was only one hour ?—If it was only one hour it would not be affected ; so that my remarks here refer simply to the proposed four alterations of 20 minutes each —they would be altogether modified by that. An alteration of an hour would not affect them in any way at least, not seriously.

2963. That is all that you need say, perhaps, about that question ?—About the question of time signals.

2964. Is there some other point that you would like to make ?—There was another point about the process by which this change is to be effected. This also refers especially to the 20 minutes change eight times in the year. It would not be so serious if the change were made of an hour, because the minute hand would not have to be altered. Perhaps I may explain that it was a great point in the adoption of the hourly zone system that it would only be the hour that would differ in different countries, but not the minutes or seconds, and that removed a very great difficulty. There seem to be two alternatives :—on the one hand, the minute hands of all Church, turret, and other public

Mr. *Pearce*—continued.

clocks, and also of all smaller clocks and watches must be set forward 20 minutes at 2.40 a.m. on four Sundays in April, and set *back* 20 minutes at 3.20 a.m. on four Sundays in September ; or, on the other hand, allowance must be made for the error of the clock or watch 20 minutes fast or slow. The British Watch and Clockmakers' Guild consider the first alternative impracticable. It is pointed out that railway clocks are usually wound and set by outside experts, and that the clockmaker does not wind the clocks in the small hours of Sunday morning. When and by whom are the alterations to be made ? What will happen if a signalman forgets to alter his clock ? The second alternative, which is more likely to be practically adopted, is liable to lead to mistakes and misunderstandings, as clocks will be altered at various times to suit the convenience of those concerned.

Mr. *Richards.*

2965. You made an observation concerning working men. You believe that those are the people who should be consulted about this change ? —Yes.

2966. I suppose you know what number of men are engaged in industrial pursuits in this country ? —I cannot say that I have any definite knowledge.

2967. I might perhaps give you the information. In industrial pursuits, that is in factories and such like, there are no less than nine millions ?—I am not surprised to hear it.

2968. Of men and women—six million men, and the rest are women ?—Yes.

2969. You make the suggestion that we can obtain this by personal effort—that means, in particular trades. I suppose you are aware that there are such things as strikes and lock-outs in this country—which I hope will soon be a thing of the past ?—Yes.

2970. Those are the outcome of employers and employed failing to adjust certain things ?—Yes.

2971. Sometimes it is the hours of labour ?—Yes, but may I ask one question : What is the meaning of the hours of labour—the length of the hours, or the beginning ?

2972. The present hours ?—Is that the length of the hours—is it eight or nine hours ; or do you mean that the hours should begin at five o'clock instead of six ?

2973. My view is that we, as factory operatives, would benefit by commencing earlier in the morning, and getting more leisure in the evening ? —I do not wish at all to express any opinion on that point ; but my point was this. I wish to understand whether, when you speak of disputes and strikes as to the hours of labour, there has been any dispute as to beginning at five o'clock in the morning instead of six ?

2974. Yes, in the building trades there have been disputes of that kind ; but I only wanted to show to you that there is an instance in a particular trade where employer and employed differ, and it comes to a mimic warfare. And, of course, the object of this Bill is to use the brain of the country, which is supposed to be Parliament, for the guidance of others. You made a reference

Mr. *Richards*—continued.

to the engineering trade down at Greenwich. That is something new to me, that is the first time I have ever heard of operatives preferring half-past six in the morning to six o'clock. That involves leaving off at six at night in preference to half-past five. That is news to me as an operative ?—I asked the question, because I happened to be there. I have known it for years, and wondered about it; because I know in a general way, from actual knowledge, of other works in the neighbourhood that I am brought in contact with—I am only speaking of those I am in contact with—that they generally leave off at 5.30; but in this particular case, and it is an important factory, they work till six o'clock, and they prefer to start at half-past six in the morning. The head of the firm, in speaking of it, said that he thought it would be much better for them if they started at six o'clock and left off at 5.30, but as they preferred this, he adopted it.

2975. That is a thing that I have never heard of before, where the men would work later in the evening?—Yes, and start later in the morning—that is the point; that is what they liked, but it may be rather unusual.

2976. You made a reference to the gentlemen who golf and swim in the morning. Probably you might not be aware that my experience is this. The operative who works in a factory has to bring forward such an amount of physical energy that he nurses it all until his day's work is over. He very rarely indulges before working hours, and his custom is that he likes a long evening, when he can say: "Well, I am done for the day"?—I did not express any opinion about operatives there. It was simply confined to clerks in offices and business men; it has nothing to do with operatives. I can quite understand that.

2977. Probably you would not be surprised to hear that in one of the largest trades, in fact, the largest industrial trade, its representative, a Member of this House, told me yesterday, when I was asking him how it would affect their industry, "On the whole, our people would like it." They start at six o'clock in the morning; and I do not see these difficulties that you suggest about getting up at 4.15 in the morning. We do not mind that usually, if we can get the daylight in the evening—if we can have the long evenings?—I do not wish to express any opinion as to what the wishes of the operatives are; my only point was that they ought to be consulted in the matter. So far as I have noticed, I may be wrong, we have heard the views of the employers of labour rather than of the labourers themselves. That is really all I wished to indicate, and I wished also to take the opportunity of indicating the conditions under which they work, which come within my cognisance—the astronomical conditions as regards daylight. If they prefer to start work in twilight hours, in my view they are perfectly entitled to do so.

2978. Could I take it for granted that so far as your own position is concerned, and your own work in regard to this and other countries, that you are rather married to the Greenwich idea, and that Greenwich time should not under any circumstances be interfered with? Might I suggest that you are a little biassed towards Greenwich time?—I do not think it is at all a fair suggestion. Greenwich time has been adopted by the whole world practically. What I am biassed in favour of is not breaking faith with the rest of the world.

2979. That is what I mean. Cannot the compact that you entered that Greenwich time was not likely to be altered——?—That the Greenwich meridian time was not likely to be altered?

2980. Would it not be much better, even if you were a greater person than the Astronomer Royal, would it not be more interesting to study the welfare of the people as a whole, rather than any compact we have entered into. Would the nation suffer if we endeavoured to alter Greenwich time?—It would suffer in its relations with the rest of the world. That is what I think; unless we can bring the rest of the world to our view. If we can do that—that is my point—that we ought to consult other nations who have made our standard time the basis for their reckoning.

2981. And, as other countries are in front of us one hour by their ordinary time, there is no reason why we should not come up to them?—Those remarks of mine had reference to the proposals of the Bill for a 20 minutes' alteration four times. I have not expressed an opinion as to the other question.

Mr. *Holt*.

2982. You told us that this time zone system, based on Greenwich, had been adopted by all civilised countries, except France and Russia?—Yes.

2983. Does that apply to South America as well as North America?—No, it does not. I did not say all, but I said generally throughout the world, with one or two exceptions. I put it in rather general terms, because these changes have been introduced gradually. South America has not adopted it, though the delegates from South America voted for it (with one exception) at the Washington Conference in 1884.

2984. Do you happen to know what the system in South America is?—I am afraid I do not know; we have not got any information as to that. We have to gather this information as well as we can, and it is rather difficult to find out in some cases.

2985. You told us that you thought it would be very desirable to get France to fall in with the Greenwich meridian?—Yes, I think so.

2986. I suppose that all their charts and similar documents are made up to the Paris meridian?—Yes.

2987. And if a navigator was accustomed to use a chart made on the basis of the Paris meridian and got hold of a chart made on the basis of the Greenwich meridian, it might be a great death trap?—Yes.

2988. It is a very important thing for navigation, at any rate?—It was in view of that that the Conference was held in 1883, and this question was considered, and in order to avoid the confusion

and

Mr. *Holt*—continued.

and danger to navigators of using charts with different meridians, the imaginary Island of Faroe was adopted for some time—at least, it was imaginary in the sense of meridian—and it was decided, in order to secure uniformity, to adopt the meridian of Greenwich as being that which was most widely adopted and spread—*repandu* was the expression used.

2989. Practically, a navigator in the habit of using charts based on the meridian of Greenwich could scarcely, with safety, use a chart based on any other meridian?—He would have to make allowance.

2990. Which he could hardly be expected to make?—No.

2991. Therefore, it would be a great advantage, and a considerable economy, to get all civilised nations to accept the same meridian, so that their charts and similar documents should be interchangeable?—Yes.

2992. And you think that if we adopt the proposals of this Bill it is likely to seriously imperil the prospect of France accepting the Greenwich meridian?—Yes, I do.

2993. If anything were done, would you prefer the alteration of one hour twice a year to an alteration of 20 minutes eight times a year?—Certainly—if anything is done.

2994. That would be the lesser evil of the two?—It would be a lesser evil.

2995. It would simply be the same thing as calling 11 o'clock in the morning, noon?—Yes.

Mr. *Pearce.*

2996. Not noon—12 o'clock?—Perhaps I may explain. When I have been going to Switzerland, I have found that there is an alteration of an hour. I have not altered my watch, but I have just allowed for it—it is very easily done; but the alteration proposed in this Bill is very much more complicated.

Mr. *Holt.*

2997. Do you know any difference between the meaning of 12 o'clock and noon?—I do not.

Mr. *Pearce.*

2998. Noon means when the sun is at the highest altitude above the horizon?—I apprehend that noon is when the sun crosses the meridian.

2999. The highest point above the horizon?—It is not measured in that way, because you could not measure it accurately; but it is the crossing of the meridian plane.

3000. Whereas 12 o'clock is twelve of the clock?—Yes, but mean noon is the same thing as 12 o'clock. It depends upon what clock you are using.

Mr. *Holt.*

3001. May I put it in this way: supposing that you got an order to do a certain thing at noon, and supposing that you got an order to do a certain thing at 12 o'clock, as things stand at present you will probably consider the two orders compatible and carry them out at 12 o'clock?—I think according to the existing Act of Parliament it would be so.

3002. Now, supposing that this Bill passed, and you got an order to do a thing at noon, would the effect of that order on your mind be the same as the effect of an order to do a thing at 12 o'clock after this Bill is passed?—Perhaps I may say what I have to say about this expression, Greenwich mean time.

3003. It is a point of some importance?—I wish to call particular attention to this—someone else has done so too. The expression in the Bill "Greenwich mean time as varied by this Act" is incorrect. Greenwich mean time is settled by the sun's passing across the meridian of Greenwich, and no Act of Parliament can stop the sun's apparent motion (or the earth's rotation) for 20 minutes, or, in the alternative, instantaneously shift the meridian of Greenwich by 220 miles at a time. That is exactly what it means.

3004. And that has not been done since the time of Joshua, I believe?—No, and I believe in the latest manuscript found that is omitted. But I think in any case that expression would have to be changed, because Greenwich mean time is defined in that way.

Mr. *Pearce.*

3005. Greenwich mean time is defined by the Act of 1880?—Yes.

Mr. *Holt.*

3006. There is one more point that I want to ask you. I think I am right in saying that Greenwich is a place very much nearer the East of England than it is to the West?—Yes, that is so.

3007. And as a matter of fact Greenwich mean time does not represent what I might call the mean time of England and Scotland—the United Kingdom?—No.

3008. It represents something substantially earlier than the mean time of the United Kingdom as it is?—Yes. You are using mean time here in a different sense, of course.

3009. I mean to say the average mean time of the whole Kingdom?—Yes.

3010. Could you say, roughly speaking, how much it would be—10 minutes, 15 minutes?—I should think something like that. The extreme West of England is 20 minutes west of Greenwich, and generally I should think the average would be about 10 minutes for Great Britain. Edinburgh and Liverpool, of course, are very nearly in the same longitude, the same meridian.

3011. Could you tell me, for instance, where does the meridian of Greenwich—if I may use the expression—pass out of England to the north? Do you happen to know off-hand? Is it before you get to Yorkshire?—On the Wash, I should think; somewhere near there.

3012. So that practically the whole of the population of England is already living to the west of the meridian?—Yes, the bulk of the population.

3013. And is already, as a matter of fact, anticipating their true time by something on an average representing 10 minutes?—Yes.

3014. And that, of course, would be accentuated under the Bill?—Yes.

Mr. *Pirie.*

3015. I would like your advice in view of what you

Mr. *Pirie*—continued.

you say of the expression in the Bill being incorrect, "Greenwich mean time as varied by this Act." On the supposition that the Bill became an Act, how would you, with your knowledge as an astronomer, word this expression, which you say is incorrect in the case of Great Britain in line 22 of the Bill: "Greenwich mean time as used for the purpose of astronomers and navigation shall not be affected by this Act"—how would you define that?—I really have not considered exactly how to put it, but I think that if we were to say, "The standard time for Great Britain," or I should prefer to say, "the legal time for Great Britain, as varied from Greenwich mean time by this Act." That would express the thing—not a variation of Greenwich mean time.

3016. That would be a more correct expression of the term?—Yes.

Mr. *Pearce.*

3017. That is a question for a lawyer?—Yes, but sometimes a lawyer might use the expression "Greenwich mean time as varied by this Act" without being cognisant of the fact that Greenwich mean time cannot be varied without stopping the sun.

Mr. *Pirie.*

3018. Then you spoke as to courtesy to foreign nations. Could you inform the Committee what nations in your opinion should be consulted, if we do settle to adopt any change of time?—This time-reckoning adopted by foreign nations was adopted through an International Congress.

3019. At which a great number of nations assisted?—I believe all the nations were represented who desired to be so. I think that the same procedure should be followed—that there should be an International Congress for discussing this question and deciding upon it.

3020. When did that last International Congress take place?—In 1883 I believe this movement was initiated.

3021. Through what departments is this correspondence or negotiation as regards time conducted between nationalities—through the respective Astronomers Royal?—Through the Foreign Office, I suppose it would be. I ought to qualify my last answer. This movement was initiated at this International Geodetic Congress in 1883, and then an International Prime Meridian Congress was held in Washington in 1884, when the resolutions were passed by special delegates from the different Governments. There was a dual movement, first in the United States, where the confusion from 75 different reckonings for time led to great trouble, and this was started by the Railway Companies concerned, and then there was a movement by the International Geodetic Association, which was concerned primarily with the determination of longitudes and accurate positions and measurements of the earth; and they held almost simultaneously a conference at Rome in October, 1883; and then the recommendations of those two bodies were embodied in this International Congress at Washington.

3022. Then supposing that it was decided by Parliament to adopt this Bill, would you advocate any delay before it actually became law in order that an International Congress might be assembled?—Yes.

Mr. *Pirie*—continued.

3023. A year's delay?—Until foreign nations have been consulted properly.

3024. You think we would be in honour bound, by courtesy, to do so?—I think it would cause a great deal of bad feeling if we did not.

Colonel *Philipps.*

3025. On what grounds would you base your view that it would lead to bad feeling? There is bad feeling surely only if some harm is done to other countries by it?—There is a matter of sentiment that enters into this very considerably. The foreign nations have sacrificed their own national meridians for the sake of adopting that of Greenwich, and I think there would be a liability to sore feeling if we made a change without having taken the trouble to consult them.

3026. There is one other point on which I want to ask you a question, and that is on the question of French charts and English charts. If I did not misunderstand you, I think you said to Mr. Holt that any such change as is contemplated by the Bill would tend to prevent a friendly arrangement with France in the way of having a common meridian for our charts?—It would shake their confidence in the security of our meridian.

3027. But there is nothing in this Bill to shake anybody's confidence, so far as I can see, in the meridian?—It speaks of "Greenwich mean time as varied by this Act."

3028. But it does not change the meridian, does it?—Yes, it must change the meridian necessarily; it must either stop the sun or change the meridian. You have your choice of two awkward alternatives.

3029. It changes the meridian, you say?—Either it stops the sun suddenly for 20 minutes or it changes the meridian suddenly for 220 miles.

Mr. *Pearce.*

3030. Neither of which can be done?—No, except by the use of words.

Colonel *Philipps.*

3031. But is the time that sailors use for their charts exactly the same time that we use every day as the Post Office time and railway time? Their chronometers are not set to that time, are they?—Yes, they are set to Greenwich mean time.

3032. Are they set to exactly the same time?—They work from Greenwich mean time by their chronometers.

3033. Their chronometers and Big Ben outside here are working at exactly the same time—is that so?—Yes, if they are correct. They allow for errors, of course. At the same time, sailors in their navigation use local time, but they determine their longitude, which is all-important, by reference to the chronometer that shows Greenwich time.

3034. But they are working all day to a clock that is set to Greenwich mean time?—They have that always to work from.

3035. That is their basis?—The time they keep on board ship is local time.

3036. And

Colonel *Philipps*—continued.

3036. And all their operations they have to calculate every day back to their datum, and Greenwich mean time is their datum?—Yes, from the Nautical Almanac.

3037. Do you suggest that this Bill will change the datum for their chronometers?—No, because it does not apply to navigation.

3038. That was what I was trying to get out—how any steps that we might think it desirable to take could possibly affect the international meridian. Nothing in this Bill, as I understand it, would affect sailors using the meridian at Greenwich, as they do now?—No.

3039. Then I do not understand why you consider that it would affect any friendly arrangement?—My remarks had not reference to navigation.

3040. But that is what Mr. Holt was asking you about; he was leading up a great deal on the question of charts?—Perhaps I may explain that the two questions are intimately mixed up. In the resolutions at the Conference at Rome, the question considered was the choice of an initial meridian, or common meridian for longitude and time, and that applies to charts and also to time-reckoning; the two things were put together. It did not occur to the foreigners that you could have one meridian for longitude and another meridian for time, but the whole object was the unification of longitude and time, and this Bill would affect the object which they had in view of unifying time.

3041. On the Continent of America and in Canada they have got a different longitude; there they have got different times fixed arbitrarily, so that when you arrive at a certain line it is 11 o'clock, and when you are over that line it is 12 o'clock?—Yes.

3042. Those times are all based on some common datum?—They are all based on the Greenwich meridian.

3043. Do you see any practical difficulty whatever in the imaginary line across Canada. As you cross in the Canadian and Pacific Railway, you know that it is 11 o'clock as you run into a station, and as you leave the station at practically the same instant of time, it is 12 o'clock?—Yes.

3044. Is there any practical difficulty in having 11 o'clock and 12 o'clock at the same moment?—Yes, considerable difficulty was found. Sir Sandford Fleming, who was the prime mover in this scheme, got his standard zones introduced—hourly standards—as the first step towards universal time, of which he was a strong advocate, and I have had a correspondence with him as to the difficulties that there are in transition zones. To meet that, it was proposed to adopt a time six hours after Greenwich, throughout the American Continent, but that was rather too drastic a measure for the habits of the people, so that it has not been accepted. But there are difficulties, legal and otherwise, that arise in the transition from one zone to the other.

3045. At the present moment, as a practical working problem, they are working on that line?—Yes.

3046. That is the same principle, I understand, as is worked on in Europe—in Mid-European, Eastern European, and Western European time?—Yes.

Colonel *Philipps*—continued.

3047. You have actually in Europe, at the present time, an east and west imaginary line where it is 11 o'clock and noon at the same time?—In Europe it is hardly so, because the imaginary line is a real line, the boundary of a particular country, but in America it was defined by longitude, and it did not depend upon any boundaries of States or countries, but on an imaginary line, and there is where the difficulty came in.

3048. But what I want to bring out is this. Some members of the Committee evidently feel some difficulty in there being a time which is 11 o'clock, and yet is 12 o'clock—that it is 11 o'clock, and yet the sun is in the meridian—as if that was incompatible with practical work?—That difficulty was felt in America.

3049. But it is being got over all right?—I should say that it has been evaded rather than anything, because they have arranged the line of demarcation between the zones, so as not to fall upon any important town.

3050. In other words, they have adapted their meridian time to Greenwich time—they have shifted their clock to their datum to suit the exigencies of people in different parts of the country?—In that sense that is so—so as not to have in any populous place two 11 o'clocks and 12 o'clocks—not to have any ambiguity about time—that is the important thing.

3051. But in two quite neighbouring places they have two actually different times, all taken from the common datum of Greenwich time?—I am not fully informed how they got over it, but that was the difficulty that was felt, and it was rather a serious matter, and it had to be met in some way so as to avoid it.

3052. What I wanted to bring out was that there are actually in one part of the globe, where they do work it practically, two actually different times in the same country at the same moment?—Yes.

3053. Yet here this Bill only proposes to change from the common day temporarily?—Yes, it is in the temporary change that I see the great difficulty and the great trouble. A permanent change is not nearly so serious.

3054. You would not see any difficulty, then, supposing that we drew an imaginary line in England, and said that it should be 11 o'clock on one side, and 12 o'clock on the other?—No. I would not say that. It must be understood that in the United States and Canada this was introduced in the first instance on railways and for telegraph purposes. The railways adopted the division and then the rest of the community fell into line. There were considerable legal difficulties in Canada, and Mr. Wicksteed, Law Clerk to the House of Commons, consulted me about them, how they were to be got over, and among them, the very difficulty that you mention, of neighbouring towns having times differing by an hour. But the primary point was that the railway companies used it, and then it was left for the legal gentlemen to settle what was to be the legal time used in the different places concerned, the boundaries of provinces being taken instead of imaginary lines of separation.

3055. Did

Chairman.

3055. Did I rightly understand you to say that the Horological Institute were opposed to this Bill?—No; the British Watch and Clockmakers' Guild had a meeting, and the discussion is given in the journal of the Horological Institute. The Horological Institute as such, I believe, has not taken any part in the matter.

3056. I can give you very shortly the evidence which was given by Mr. Wright; he is in favour of a permanent alteration of the clock by one hour?—Yes, I am aware of that; I really quoted from him. But that, of course, is quite a different thing from this Bill.

3057. Would you be in favour of adopting that course?—No. I am not in favour of that. I prefer no alteration; but still, of the two, I should prefer it.

3058. From the cross-examination of Colonel Philipps, I think we may take it that all measurements of time are more or less arbitrary and conventional in their character?—Yes.

3059. And that they are so arbitrary in order to suit the general convenience of the zone?—I should wish to make a distinction between the origin from which time is reckoned and the measurement of time.

3060. Or call it standard time?—No. I mean that the origin from which time is reckoned is arbitrary, but the measurement of time is not arbitrary.

3061. But the standard time in any zone is arbitrarily fixed?—But it goes on continuously, when once it is arbitrarily fixed, without any arbitrary element coming into it.

3062. If you thought it would be a good thing for the people of this country to be given opportunities of going to work earlier, and generally to take advantage of more daylight, you would not be opposed to carrying out the principle of this Bill—not the provisions, because you object to the modes; but if you thought it would be a good thing to give people opportunities of having more daylight, both for their work and recreation, you would not object?—If that were the only way of securing it, I should not object to altering the zero from which time is reckoned—that is to say, putting it one hour earlier or one hour later.

Chairman—continued.

3063. But you are not at all convinced that people do want more daylight?—Generally speaking, I am not, or that, if they do want it, they could not obtain it by other means.

3064. But I would point out one thing with regard to that—that there is no obligation in this Bill for anybody to do anything at all?—There is no obligation under the Act of 1880 for anybody to adopt Greenwich time legally, but there is a presumption that unless the time is specially mentioned it is Greenwich time, and the result of that is that everybody is obliged to adopt Greenwich time. This Bill is just in the same terms identically, and this Bill is obligatory in the same sense.

3065. So that your view is that if any large industry desires starting work earlier or leaving off work earlier, it is perfectly well able to establish such a rule for itself without the help of legislation?—Yes, that is my personal view. I am speaking there not as an expert in the matter at all.

(*The Witness withdrew.*)

Mr. WILLIAM NAPIER SHAW, SC.D., called in; and Examined.

The *Chairman.*

3066. You are Director of the Meteorological Office?—Yes.

3067. And you were formerly Assistant Director of the Cavendish Laboratory, Cambridge?—Yes.

3068. Will you favour the Committee with your opinion of this Bill?—What I have to say deals specifically with the part of the Bill that is concerned with the measurement of time, and not with the part of it that deals with industrial considerations.

3069. From the point of view of its being practicable, what aspect of the measurement of time do you propose to deal with now?—I should wish to say that the proposal is undesirable for certain reasons which I will endeavour to give. I have put together what I may call eight points, and perhaps with your permission we might take them seriatim.

3070. If you please?—The first is that the proposed alteration of the denomination of the hours of standard time is a violation of fundamental scientific principles, because for purposes of measurement, time, like any other physical quantity, is conceived of as a continuous quantity, and all numerical values must be referred to the same epoch or datum point. The occasional variation of the epoch renders any system of time measurement based thereon unsuitable for scientific purposes. With such a system a single denomination of the time of occurrence of an event may have two meanings, which is not permissible in scientific work. The second point is that the use of Greenwich standard time for Great Britain is in fact part of the basis of the International Prime Meridian Conference, and as such is a matter of interest to the whole world. The letters a.m. and p.m. refer to mean noon at Greenwich. For any question as to its scientific importance we have to depend upon the corporate opinion of representative astronomers conversant with the daily requirements of various countries as regards the specification of a time standard. My third point is that the science of meteorology depends largely, if not exclusively, upon the comparison of measurements among which time is one of great importance. A discontinuous system of measurement is therefore inadmissible, and meteorological observers, together with astronomers, would, in case the proposal were carried out, have to use a dual time system, one for the ordinary affairs of life and the other for meteorological observations. Among meteorological observers are to be found persons belonging to all classes of the community. They are not, as in the case of astronomers, confined to a special

Chairman—continued.

Chairman—continued.

special class working in observatories and trained in the intricacies of time measurement. The use of a dual time system except for trained experts is not possible, and for so widely spread a system as that covered by meteorological work would inevitably lead to great confusion. Under my fourth head I submit a copy of the Observers' Hand Book recently issued by the Meteorological Office for the instruction of observers, and I call attention particularly to certain pages which give details with regard to the measurement of time and its application to meteorological work. The pages are, Section 1, pages 7 and 8, which give the times of observation; Section 3, pages 11 to 14, which give the specification of standard time and various matters about time; pages 55 and 56, in which, on page 55, there is a statement that for the casual observations the time observation must be noted, and page 56 gives an account of the permanent register and the way in which the items have to be referred to time. Part II., page 59, gives an account of the method of measuring by means of self-recording instruments, which would be vitally affected by any change in the denomination of time used by the observers; and finally, there is a general table, which represents a month's meteorological observations, at pages 128 and 129, which show how all meteorological observations are entered for definite and precise times and selected hours. All the references to time in that book would be ambiguous unless standard time is adhered to. Any ambiguity in the interpretation of the denomination of the hours would affect not only the observers and the scientific workers, but the numerous applications of the observations to practical life. The fifth point is: That all meteorological data have reference, direct or indirect, to the effect of the sun, and are therefore concerned with sunrise and sunset. Separate tables of the time of sunrise and sunset adapted to standard time and modified time would be required for meteorological work, as for all other operations depending upon sunrise and sunset. The sixth point is: That for the work of the Meteorological Office the proposal presents special difficulties. The Office receives about 50,000 telegrams a year (some of them, however, arrive as collective telegrams at the Office), partly from stations in this country, and partly from stations abroad. Many of the latter are in exchange for telegrams sent abroad, and to these must be added telegrams originating from the office, which at a rough estimate reach a total of 20,000, so that the daily work of the Office depends upon the punctuality of 70,000 telegrams a year. The telegrams sent out from the Office include storm warnings and telegraphic forecasts, and promptitude in the despatch of those is of very great importance. The system is an essential part of an international system based on the principle of synchronous observations, and every effort is made to secure synchronism and punctuality in transmission, in order to reduce to a minimum the time spent daily in the various Meteorological Institutes of European countries over the collection of telegraphic reports. I submit a copy of the instructions in Meteorological Telegraphy for telegraphic observers wherein all the times specified are Greenwich times, and you will see that almost every page of the book contains some specification of time. The instructions would require to be altered if another time were used. The confusion which is caused already by the difference between Greenwich time and Irish time makes the suggestion of an alternative time standard for the whole Kingdom very serious. The seventh point is that the daily service of the office is divided into three parts, according to the time of observation, viz., 8 a.m., 2 p.m., and 6 p.m. The evening service is for the special purpose of storm warnings and for newspapers; 6 p.m. is selected as the latest hour for observations in time to place telegrams on the wires while the telegraph offices are still open. Complaints have already been received that the time of issue of the evening reports is too late for the newspapers. If by the operation of the Bill the newspaper work and the closing of the telegraph offices were made an hour earlier, the time of observation for the evening service would be relatively an hour later, and the evening service could not be continued on its present basis. My eighth and last point is that since 1903 (this is a point in my own experience at the Office) the Office has been endeavouring to change its morning hour of observation to 7 a.m. for its own purposes, and the insuperable obstacle has been that there are no telegraphic facilities at that hour. In that respect the office hours are controlled by the Post Office. What is true of the Meteorological Office is likely to be true of other departments of activity, viz., that people wait for indispensable facilities which are under the immediate control of Parliament, and are not really affected merely by the denomination of the hours. An alteration of these denominations is not therefore necessary to Parliament to secure the advantages which are the object of the Bill.

3071. That is a very important point that you have just mentioned: that your attempt to alter the clock from 8 a.m. to 7 a.m. was frustrated owing to the absence of Post Office facilities?—Yes.

3072. Whereas if some such thing as the provision in this Bill were in operation that would have been obviated?—Most certainly, but 8 o'clock might still be called 8 and 7 o'clock might still be called 7; I have no objection to 7 o'clock being called 7. I should like the facilities at 7 a.m., but do not wish to change its name and call it 8.

3073. How otherwise are you going to get the facilities?—By the intervention of those people who control such matters.

3074. Do you think that is likely, seeing how deeply ingrained are the habits of the people of this country to get up at a certain hour, and leave off work at a certain hour; do you think it possible or likely that any distant approach at a universal arrangement of this sort could be obtained except by legislation?—But legislation need not necessarily change the name of the hour in order to do that.

3075. You want a general convention to cause people to begin work earlier, let us say, and leave off work earlier. You can call the time what you like, and give it any name you please so long as you get the effect—so long as you give a person who

Chairman—continued.

who wants it the opportunity to work at 7, who can only work at 8 now, it does not matter, does it, what you call the operation?—I submit that it does matter a great deal, because by calling it 8 when it is really 7 by Greenwich mean time, one makes a change in a number of things that have been settled on scientific principles, and should not be disturbed except under the most exceptional conditions. If you make a law that the Post Office shall be open at 7 o'clock in the morning, I see no objection to that. To me it would be a very great convenience.

3076. Would not that be introducing an element of compulsion repugnant to the genius of the people?—But if it is not compulsory, what is the effect? If the Bill is not compulsory, it is surely not effective. The confusion would be actual chaos, if half the people in a town adopted the Bill and altered their clocks and the other half of the people did not.

3077. If it were proved on trial to have wholly failed in its effect, no harm would be done, and we could go back to the *status quo*?—I submit that very serious harm would be done; you would have interfered with one of the valuable principles of scientific measurement.

Mr. *Holt.*

3078. The Chairman suggested to you that if the Bill passed you might get your postal facilities at 7 o'clock instead of 8; but that would only be in the summer months?—That is so.

3079. You want your postal facilities at 7 o'clock instead of 8 just as much in the winter months?—Yes.

3080. So that it would rather confuse you than otherwise. It would mean that for four months in the year you got your postal facilities in that way, and for eight months in the year you did not, and you would probably be worse off with your postal facilities at that time occasionally instead of altogether?—Postal facilities available occasionally would be of no value to us, because we must be synchronous all the year round.

Colonel *Philipps.*

3081. I think you said that this change would not be permissible in scientific work?—Yes.

3082. There is no proposal in the Bill that it should affect any scientific work, which is naturally based on certain fixed data, is it not? What has been running in my mind, and I want you to assist me, is this—that on board ship they work on the datum of Greenwich, and that is the data on which they work all their calculations; but they adapt it to suit the local time of the place at which they happen to be at the moment?—That is perfectly true, and to a certain extent, if you could actually identify the workers in science, and say, This person is working in science and that person is not, in the same way that you can say, This man is at sea and that man is on land (which is of course perfectly easy), then perhaps the difficulty might be got over, and scientific workers would use one time and other people would use another. But science and practical life are closely interwoven, and science frequently

Colonel *Philipps*—continued.

makes use of observations and facts derived from ordinary practical life.

3083. But surely all scientific workers have to find out the exact position of all other observers for anything to do with the scientific working of time. When you were at Cambridge University, in every calculation that you made you did that work according to Greenwich time—that was your datum; but you had to adapt it purely to to your local time?—In the laboratory, of course, we worked with clocks and took Greenwich time.

3084. But to every calculation you added or deducted the difference between your local time and Greenwich time?—If it was a calculation that depended on finesse, or great accuracy, of local time.

3085. Surely that is what you meant by scientific as compared with every-day work?—No, not at all. Time only comes in as one element. Scientific accuracy and precision may come in as regards other elements. The time specification may be simply a reference so that one may know sufficiently approximately the period of time of the occurrence.

3086. You said that a dual time system, except to trained experts, was not possible. You were in the room, I think, just now when I questioned the Astronomer Royal about Canada? There you have four or five local times, I think I am right in saying. For all scientific work you have your Greenwich time—is not that so?—That is so.

3087. Then you have, on every point in Canada, a dual time—you have Greenwich time, and the time within that zone—zone time, is not that so?—Yes.

3088. Then you have dual time in every part of Canada?—Yes.

3089. Then you are not quite correct, are you, in saying that a dual time system, except for trained experts, is not possible?—There is no dual system at the same place, I think. The geographical position determines the time which shall be used at that place.

3090. But it is all based on Greenwich. You have dual time—you have Greenwich time and another time based on Greenwich time?—Certainly, but the proposal of the Bill, as I understand, would add to the absolutely inevitable difficulties of time measurement, as applied to the earth, and would add some which are merely designed to secure another object aimed at.

3091. Let me keep you to that statement. These statements are all very important, because any evidence of a gentleman who has studied these questions is important. You have laid down that a dual time system is not possible, but is it not possible? You have not given me an answer. In Canada have you not got two times distinctly, one for scientific work, namely Greenwich time, and one to suit the people in the zone?—But is the man in the street in Canada expected to use both?

3092. No. No more would the man in the street in England be expected to use both?—When I made that remark, I was saying, of course, that it was not possible for the ordinary individual. I am not very familiar with the interior of an observatory, but I understand that in an observa-

Colonel *Philipps*—continued.

tory they keep sidereal time, and solar time, and civil time; they have three times in an observatory, but outside, in Fleet Street, they have only one time.

3093. But there is no proposal in this Bill to have two times, is there?—It would be necessary to have two times, one for meteorological observations and one for every-day life, and I suggest that if the people in the street use British time, and the meteorological people must use Greenwich time, they would have two times.

3094. But surely every telegram that you get from abroad you have to adapt to English time?—That is true. I do not wish to add anything to the difficulty of deciphering those times.

3095. But my point is that you do do that. For instance, if you get a telegram from Winnipeg, which I think is in Mid-American time, or if you get a telegram from Quebec, which is in Eastern or Atlantic time, I forget which, you have to make a note of those different times, and that is no great difficulty to you, is it, surely?—When you speak of Winnipeg, or places in the Far West, we get no telegrams, as a matter of fact, from those countries at present. We deal exclusively with telegrams from Europe.

3096. Then so far as your information goes, when you get a telegram from Ireland, you have to adapt it to Greenwich time, to get it to the scientific time?—Telegrams from Ireland are all dated by Greenwich time. That is one of the peculiarities of Irish time, and it is a very awkward one, that for telegraphic purposes Greenwich time is used, and for local purposes Irish time is used, and the confusion is not inconsiderable.

3097. Then, say, from Berlin, where there is one hour's difference. You allow for that in any scientific observations?—Not specially for particular observations; we make the same allowance the whole year through, and through the whole course of operations.

3098. So that even at the worst, it would be an allowance that you, a body of intelligent men, would have to make for a certain time of the year?—But the question is, what has happened at the other end. Let me admit, if you wish, that there are intelligent people in Victoria Street, it does not follow that the people at the other end of the message use the same degree of intelligence. There may be confusion at the other end of the telegram, which I could only find out by a long process of inquiry.

3099. But you would only have to issue orders to your observers that they should use the time that this Bill effects for the other time, and so get over the difficulty?—If orders that are issued to observers were so completely and promptly followed out without mistakes as one would wish, it might be so.

3100. You put before us a small difficulty in the way of an undoubtedly important, but comparatively small department of work. But at the same time, if the scheme of the Bill was beneficial to the great mass of the people, do you not think the difficulty could be surmounted?—I should not like to say that any difficulties could not be surmounted, but I mention the difficulty to my

Colonel *Philipps*—continued.

department because I believe you would find, if it came to practice, that there were corresponding difficulties in a great many other departments, and probably unsuspected difficulties. For example, the time of sunrise and sunset, and the lighting-up time for bicycles.

3101. It does not apply to lighting-up time for bicycles—that is a special question. Am I not right in saying that you have a different time for the lighting up of bicycles in every part of the country. In Cornwall, I know it has been held that it is one hour after sunset?—Yes, but there is not the least doubt as to what time—if a policeman meets a man without a light, and the policeman's watch is at 9.50, there is not the slightest doubt whether that is Greenwich time or not, provided that the watch is accurate, but when there is a possibility of two times, then a note may be made in one time when it is intended to be made in the other.

3102. I think in the particular case that you have brought forward there are two times, because persons have often had to prove what the local time is, as the Act does not say that it is to be one hour after sunset at Greenwich time, but after sunset, so that there are actually two times there?—Yes, for many purposes, there must be a reference occasionally to local time.

3103. So that you have a dual time system at the present moment?—No, not a dual system of measuring time.

3104. A dual system of time?—No, not a dual system of time. The measurement of the time is quite unique, but the time of sunset as given for Greenwich has to be corrected in order to give one hour after sunset in the locality. That is quite a different thing from having two different measurements of time.

Mr. *Pearce.*

3105. I notice that you said nothing in your eight points about self-recording instruments?—I referred to Part II. of the Observer's Hand-book.

3106. You include your observation that appeared in that paper about self-recording instruments, in your evidence to-day?—That is included in that section of the book.

3107. I suppose that universal time would suit meteorological men better, would it not?—You mean a single time for the whole globe.

3108. Yes?—We should not ask for that.

3109. Would it suit you better?—I have not thought that out.

3110. I notice that you have to alter the memoranda about the barometer, according to the altitude; you have to correct it for sea time, I think?—Yes, in order to put observations on to charts.

3111. And most of your meteorology is, of course, a comparison of observations made at different places?—Yes.

3112. I agree that it is desirable that you should have as simple a means of doing that as you can, but in every case you have to adjust your record, and reduce it to some common term, whether it is Greenwich mean time or some other time, is not that so?—That is true as regards altitude.

3113. And

Mr. *Pearce*—continued.

3113. And that is all scientific work which requires a good deal of skill, and can only be done at the Weather Office?—The correction for altitude requires a certain amount of skill, but it can be done, and is frequently done by the observers themselves. It is done, for instance, at the telegraphic reporting stations by the observers, but of course instructions are given to them.

3114. I sympathise with your difficulty about the changes as between summer and winter, and back again, which would throw out your records by observers using clock time; they would send you an observation in summer, dated at eight o'clock, which in winter would be dated at seven o'clock?—If it was quite certain that that was the case, I should feel less difficulty about the situation, but what I feel is that, when they sent me a paper dated eight o'clock, I should not be quite sure whether it was eight o'clock or seven.

3115. In that case it would not be the fault of the system, but the weakness of human nature?—Yes, that is a thing one has to reckon with under all circumstances.

3116. You know that clock times are mentioned in the Statutes. You were suggesting that there should be some alteration in the times by Statute, not by a single Act of Parliament. You know that the number of references to local time by Statutes is very considerable, and some thousands?—Yes.

3117. If you had to alter the time of doing a thing in the summer for four months in the year, leaving the other eight months as they stand, would you prefer to alter all the Statutes or to make one Act of Parliament, effecting the alteration at once?—Well, of course, the wording of an Act of Parliament hardly comes within the province of my department. I should not like to give an opinion upon the process which should be followed. All I would like to suggest is that in all probability, if facilities were given for earlier work, the mercantile community would naturally follow.

3118. But I understood you in your Memorandum to offer an opinion upon that very question. Now I understand you do not wish to offer an opinion?—Upon which question?

3119. Upon the question of whether an alteration should be made in the reference in the Statutes one after another in thousands of cases, or whether it should be done by a single Act of Parliament.—Could not a single Act alter a thousand Statutes in one sense just as it does in the other?

Chairman.

3120. That is what I was coming to. Supposing that wherever 6 o'clock is mentioned in an Act of Parliament, we said that it should be read as 5 o'clock, and we know there are thousands of such cases, which would be simpler—speaking to you now, not as a meteorological man, but as a gentleman of scientific skill—to do that, or to say that the clock should be altered from 5 to 6?—I really do not wish to deny it, if you say that the one is simpler than the other.

3121. If you have not considered it, I do not mind—I do not want you to consider it. If you have not done so, I am content that you should say so?—It is not a part of the subject to which I have given any consideration.

3122. I want to ask you one more question. As a man with social sympathies, apart from your scientific attainments, do you think that any measure which gives greater opportunities of daylight would be a good or a bad thing for the general welfare of the community?—A good thing, most certainly.

3123. Then, quite apart from the very serious inconvenience that would arise to your profession by any arbitrary alteration of the measurement of time, could you say whether this Bill does carry out that beneficent purpose of giving more daylight?—I have not looked at the Bill from that point of view. The point that really concerned me was the point that I have referred to.

3124. Assuming it were proved to you that it would have the very direct and definite effect of enabling people to enjoy more daylight, would you be inclined to abate your objection on scientific grounds?—No, not at all. I should suggest that the purpose might be achieved in some such way as I have mentioned.

3125. Is there anything else that you wish to mention?—I have been asked to say that the Royal Meteorological Society wish to support the principle that meteorological observations should be taken at the same hour each day, and therefore, in the opinion of the Society of which I am a Vice-President, it is a point of considerable importance that that would be interfered with by any change of time in the course of the year, and any change in the habits of the people. That is not a personal point of mine, but Dr. Mill, who is President of the Society, asked me to mention it.

(*The Witness withdrew.*)

Tuesddy, 23 June, 1908.

MEMBERS PRESENT:

Mr. Holt.
Mr. Robert Pearce.
Colonel Philipps.
Mr. Thomas Frederick Richards.
Sir Edward Sassoon.

SIR EDWARD SASSOON, BART., IN THE CHAIR.

Mr. WILLIAM A. APPLETON called in; and Examined.

Chairman.

3126. You are Secretary of the General Federation of Trade Unions?—Yes.

3127. Will you develop the case for or against the Bill. Are you generally in favour of the provisions and principle of the Bill?—Yes, my general conclusions would be in favour of the Bill. To the mass of the workpeople there would be some advantages and some disadvantages.

3128. Will you briefly state the advantages and disadvantages?—The advantages, I think, would apply to general health, and in textile trade particularly to eyesight; because during daylight the atmosphere would be less vitiated, and the strain upon the eyes in textile trades particularly is not so great as it is with artificial light. Of course, I know that with electric light there is a purer atmosphere; but the general evidence among the working people is that the strain is greater upon the eye with electric light than it was with either gas or oil. I have tried to find out why that was so. I do not know except that, perhaps, that light waves are more acute and there is a greater intensity of light; it affects the eye much more seriously than the older lights did. I think it would be advantageous, too, if the provisions of the Bill were carried out for recreative purposes, because in large towns now there is only a very small number of places where people may obtain recreation. These places are becoming smaller in number proportionately to the size of the population, and frequently it is difficult for the people to get out into the localities where playing fields or recreation grounds are until daylight has begun to fade. Sometimes they are rather disheartened and do not make an attempt to go at all, and stay at home and stay in the towns. Then, again, in some parts of the country there are very many allotments; round Leicester and Nottingham, and places like that, there are thousands of small allotments covering from 450 yards, probably, to 1,000 yards, and the workmen take a very great interest in them; they grow lots of flowers and vegetables and things like that, and I have known them make temporary arrangements with their employers in order that they might start earlier during the summer months and leave earlier in the evening, so that they might have time to devote to the cultivation of their gardens.

Chairman—continued.

3129. Have you many Volunteers among your Federation?—Yes, I know quite a number of men who petition their Trade Union to permit them a certain amount of latitude. The hours were from seven in the morning to seven at night, with the customary intervals for meals, and many of them desired to get longer nights in their gardens, and they came down and asked that they might be allowed to make special arrangements with their employers. The permission was given, on the understanding, of course, that the arrangements were registered so that there would be some sort of check that they would not use the increased hours of the morning for the purpose of securing illicit overtime.

3130. My question was as to Volunteers for the purpose of drill and marksmanship?—I should say there are a very large number who would be Volunteers.

3131. You have not heard of any complaints being made by them of inability owing to the shortness of daylight to get put through their musketry firing?—Yes, I have heard of complaints being made because they have not been able to get off in the daytime, and when they have attended at night they have not had very much time and the firing has become very scrappy. I think, so far as the disadvantages are concerned, they would be chiefly felt by those people who already commence work at six o'clock in the morning, and earlier. In many centres of industry, the greater part of the workpeople already commence at six o'clock in the morning in summer, and in some districts and in some trades they commence as early as four o'clock in the morning.

3132. Can you give us any details of those cases?—All the lace-makers in and around Nottingham

Chairman—continued.

Nottingham—there are probably 7,000 of them—their ordinary time for commencement is four o'clock in the morning.

3133. Why so early?—The idea is that there is so much capital locked up in the machinery that they must work it 20 hours out of the 24; so they work shifts, and continue from four o'clock in the morning to 12 at night. Personally, I think a great mistake is made: that if they utilised the daylight, and occupied less of the darkness, they would save what they think they lose on capital; because I know there are great losses in connection with light where a great deal of light is necessary.

3134. Does that apply to the winter months as well?—It applies to the winter months as well as to the summer months. I think these people might object to having to commence an hour earlier in the morning.

3135. May I put it to you that it is not necessary that they should commence an hour earlier in the morning?—I think that if both employers and workmen were wise they would take care that they did not commence an hour earlier.

3136. This Bill does not compel anybody to commence work earlier or leave off earlier?—It does not, but they would have the impression that they might be compelled to work earlier.

3137. What are the other disadvantages?—I do not know that there are any other disadvantages from the workmen's point of view. I am not attempting to deal with anything that might arise from international arrangements or banking arrangements, but from the workmen's point of view I do not think there are any other disadvantages. But I would like to say that, in my opinion, it would, I think, meet with a good deal of opposition, if you decided that the time gained should be gained by the 20 minutes per Sunday, because if that was done, many people get up by their watches, and they would forget to alter their watches at night, and the result would be that they would be late at work on the Monday mornings in April; and while they would be forgiven once, probably the second or third time would mean discharge and cause a great deal of unpleasantness. In September, when you went in for your recessions, the people would get there 20 minutes too soon, and I am not certain that that would not give more trouble still. I should be inclined to think that the better plan would be to make one alteration only at the beginning of April to get the whole 60 or 80 minutes.

3138. For the four or five summer months?—Yes, so that you would have during April, May, June, July and August the full period of time.

3139. And what would you say to an alteration of half an hour one Sunday and another half hour on the following Sunday or Sunday fortnight?—That would be preferable to an alteration of 20 minutes per Sunday.

3140. Would it be preferable to an alteration of one hour at one step?—No, I should say that, on the whole, the advantage would be in favour of the one complete alteration. It would not be wise to put men in that sort of difficulty where they would be likely to be late for their work more than once in the month.

Chairman—continued.

3141. Have you considered that a mistake made of one hour would be far more serious than a mistake made of half an hour?—Yes, from our point of view it would be; but not from the point of view of an employer, who would forgive one offence when he would not forgive two.

3142. So that your criticisms as to the disadvantages of the Bill resolve themselves into a negative apprehension as to any mistakes that might be made in regard to altering clocks?—Yes.

3143. That is the only disadvantage that you see?—That is the only disadvantage that I see to the general mass of workers. There would be particular instances of hardship, perhaps, but to the general mass I do not see any other disadvantage.

3144. In that case it would obviously be a very serious hardship?—Yes.

3145. Is there anything else you wish to say?—No.

Mr. *Pearce.*

3146. You did not tell us your actual position?—At the present time I am Secretary of the General Federation of Trade Unions. I have been, of course, a workman in factories, and I am speaking to a great extent from my own personal experience in factories.

3147. What Trade Unions does the General Federation include?—125 of the largest Trade Unions in Britain; there are 700,000 members.

3148. Have you a list of them?—I could supply you with a list; I could not give you a list from memory; I could mention the Amalgamated Society of Engineers.

Mr. *Richards.*

3149. You might say all except miners?—All Unions, except miners and railway servants.

Mr. *Pearce.*

3150. Do you say that, in your judgment, the view which you have expressed would be the view of your Federation?—I have not consulted them, but from expressions I have heard I should say that the general opinion would be in favour of the proposals, because of the increased opportunities for recreation and for work in their gardens.

Mr. *Holt.*

3151. You told us that a large number of operatives with which you are acquainted work from seven in the morning till seven in the evening?—Yes.

3152. What sort of operatives are those?—I should say that is a very common set of hours: from seven in the morning, where there are factory workers.

3153. You mean factory workers?—Yes.

3154. Those do seem rather long hours, but you say that they are ordinary hours?—Common ordinary hours; they would have two hours off at least for meals in the day.

3155. And what stops those people; what is to prevent them by voluntary arrangement working from six to six in the summer?—In some instances they have already made a voluntary

Mr. *Holt*—continued.

tary arrangement with the employers, and are working from six to half-past five, because they save their tea half-hour.

3156. What prevents that being done more extensively?—Sometimes an employer objects to any dislocation of his arrangements, and you would have to face a strike if you wanted to compel him to alter arrangements of that description.

3157. But there is nothing, of course, to prevent the same employer, after this Bill is passed, saying: "I am going to work the same hours; I would like you to alter to from eight to eight"?—There would be nothing to prevent him, of course, except pressure from other industries, other occupations, which would be beginning at different times.

3158. But you tell us that there have been a good many cases in which people have had the hours altered?—Yes, they have made voluntary arrangements. A great deal depends on the employer himself. If he is a reasonable man, especially if, as in some instances, he takes a little interest in flowers and gardens himself, there would be no difficulty.

3159. You think, evidently, that the man who works from seven to seven might prefer to work from six to six; but are you quite sure that the man who works from seven to five would prefer to work from six to four?—I am not certain that he would.

3160. Is it not likely that he might say that seven to five would be better hours?—You would find instances where men would say that; but I should say, on the whole, they would prefer to get a longer evening, when they would be able to do more as they chose.

3161. You told us that the people who have begun already to work at six o'clock, or earlier, would probably not care about the Bill?—Some might object.

3162. Are there many people who begin as early as six o'clock?—I should say in Lancashire that is a customary hour in the mills; in the summer months, anyway.

3163. Now, tell me this: If the hours were altered as you suggest from seven to seven to six to six, is there not a good chance that the small children of the working-class households would be kept out of bed?—Later at night, do you mean?

3164. Would not this probably happen. I suppose that the small children from three to four years old, and the whole household probably, wake up together?—A child usually wakes up very much earlier than the parents, and wants to go to bed very much earlier.

3165. But if the parents were employing the summer evening in recreation and gardening, is there not a serious chance that the children would be kept out of bed?—I do not think so, because among the working classes the children soon learn to look after themselves; they would go to bed on their own account if they felt tired and sleepy.

3166. These little ones of three or four years old?—Should isolated cases occur, they would creep into some corner and go to sleep. They do not have nurses to put them to bed.

Mr. *Holt*—continued.

3167. That is exactly the point I was raising. If they had nurses the thing would be quite simple, because the nurses would stay at home and put them to bed. You do not think that the father and mother would be tempted to stay out during a fine summer evening and omit to put the children to bed?—No, not any more than they omit to put them to bed now. I do not think it would make any difference at all.

Mr. *Richards*

3168. Which end of the day is it, in your experience, that operatives of all classes and all kinds, either male or female, choose for recreative purposes?—The evening.

3169. Supposing that there were the two alternatives put to operatives where females are usually employed: starting at eight in the morning and finishing at six; which do you think they would prefer: those hours from eight in the morning to six in the evening; or, if they had the alternative, from six in the morning to four in the afternoon?—I think they would take the earlier hours inevitably.

3170. Do you think the Federation, as such, would be wise if they were to attempt to obtain this extra daylight by the usual guerilla warfare of a strike or lock-out, in order to obtain the method of going to work earlier in the morning; or do you think they would prefer to take a legislative enactment?—I think they would be most unwise to attempt anything of the kind on those lines; it would dislocate industries in all parts of the country.

3171. And then, as far as the lacemakers are concerned, working from four in the morning to 12 at night, do they work in shifts?—Yes, one shift works from four to nine and one to six; and the other works from nine to one and from six to 12.

3172. Which is a trade arrangement?—A trade arrangement.

3173. You do not do the same as they do in the hosiery trade in Leicester, where in some big factories with expensive machinery they work in two shifts, or three shifts, and work all night?—They object to the three-shift system.

3174. So that there is a stoppage of the mills from 12 o'clock to four?—Yes.

3175. Then do you think if this Bill became law that there would be any advantage in removing the dinner hour from 12 to one to 11 to 12; or 12 to one, as the case might be, instead of from one to two, as it usually is?—No, because already you see in many trades it is from 12 to one; in most of the building trades it is from 12 to one.

3176. Do you think that the public-houses closing an hour earlier would aid or encourage earlier retirement among the working classes?—No, not unless you made a good many other alterations, too.

3177. Of course, if this Bill were carried, it would encourage all national matters to be regulated one hour earlier?—Yes.

3178. That is, everything that Parliament had any control over?—Yes.

3179. You think, on the whole, that the operatives

Mr. *Richards*—continued.

tives would appreciate it?—Yes, and I think they would be advantaged.

Chairman.

3180. Going back to the disadvantage to which you drew special attention, as to men or women forgetting to alter their clocks, do you not think that that disadvantage would be considerably obviated by prominent notices being put up in the factories and by proclamations by public clocks?—Yes, you could reduce the evil considerably by proper notification.

3181. So that, really, the disadvantage, compared with the benefits that you think are likely to accrue to the working classes, is so infinitesimal that it is hardly worth taking into account?—It is not very important, but I thought I had better mention it.

3182. Do you consider that the advantages of this Bill can be obtained by any method except by resort to legislation; could it be done by private arrangement among employers and employed?—No, you could not get a general arrangement by the interference of the individual or of an individual union.

Chairman—continued.

3183. Have you had any opportunities of making a general consultation among your constituents as to the principle of the Bill?—No, I have not.

3184. Not by a plebiscite?—No, there has been nothing done of that description. You must form your opinions by what you hear when you are among them.

3185. You have not heard one way or the other?—No, we have taken no vote either way, nor has it been suggested that we should.

(*The Witness withdrew.*)

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Paper handed in by the Chairman - - - - - - - - - - - - - - 171

APPENDIX.*

APPENDIX A.

Paper handed in by Mr. *William Willett.*

UNSOLICITED PRESS NOTICES.

Aberdeen Evening Gazette.	Appro., 29 Feb., 3 April.	
Aberdeen Journal	Appro., 6, 15 Feb.	
Aberdeen Weekly Free Press.	Appro., 11 April.	
Amateur Photographer.	Appro., 17 March.	
Answers	Appro., 26 Oct., 29 Feb., and 14 March.	
Bath Herald		Report, 4 Feb.
Beverley Record	Appro., 15 Feb.	
Blackpool Gazette	Appro., 31 Aug., 7 April.	
Bicycling News	Appro., 4 March	
Birmingham Daily Mail.	Appro., 5 July	
Birmingham Gazette	Appro., 5 Feb.	
Bournemouth Visitors' Directory.		Report, 8 Feb., 4 March.
Bradford Daily Telegraph.		Report, 13 Feb.
Bristol Echo.		Report, 5 Feb.
Bristol Evening News.		Critical, 7 Feb.
Bristol Free Press		Critical, 15 Feb.
Bristol Mercury.		Report, 13 Feb., 6 March.
Bristol Times and Mirror.	Appro., 6 Feb.	
British Journal of Dental Science.	Appro., 15 Oct.	
British Journal of Photography.		10 April.
British Medical Journal.		Critical, 29 Feb.
British Weekly		Critical, 13 Feb.
Bromley District Times.		Report, 11 Jan.
Bromley Guide.		Critical, 3 Aug.
Burnley Gazette.	Appro., 15 Feb.	
Bystander.	Appro., 19 Feb.	Humorous.
Cassell's Saturday Journal.	Appro., 20 Feb.	Amusing.
Cambrian News.		Laughing, 7 Feb.
Carlisle Express.	Appro., 29 Feb.	
Carlisle E. Journal.	Appro., 13 Feb.	
Central Somerset Gazette.		Report, 14 Feb., and 10 April.
Cheltenham Looker On.	Appro., 7 March.	
Chicago Daily News.	Appro.	
Christian Age.		Critical, 3 April.
City Press.	Appro., 8 Feb.	
Coalville Times.	Appro., 28 Feb.	
Cork Examiner.		Critical, 7, 11 Feb.
Country Life.	Appro., 14 March.	
Court Journal.	Appro., 8 Feb.	
Daily Chronicle.	Appro., 13 Sept.	Report, 5 Feb., 4 April.
Daily Dispatch Manchester.	Appro., 5th, 6th, 12th, Diagram, 13th.	
Daily Express.	Appro., 5th, 11th, 6th, 7th, 8th, 12th, 15th, 22nd.	
Daily Graphic.	Appro., 6, 8 Feb., and 17 March.	
Daily Graphic Portage la Prairie.		Report, 25 and 26 Sept.
Daily Mail.		Neutral, 5, 5, 6, 8, 10, and 11 Feb.
Daily Mirror.	Appro., 3 Sept. and 31 Aug., 1907, 3, 6, 11, and 13 Feb.	
Daily News.		Adverse, 6, 11, Feb.
Daily Record and Mail.		Critical, 6 Feb.
Daily Telegraph.	Appro., 5, 10, 11, 13 Feb.	
Draper.		Critical 26 Oct., and 15 Feb.
Drapers' Record.		Critical, 2 Nov.
Dublin E. Herald.	Appro., 11 Feb.	
Dublin Evening Telegraph.	Appro., 13 Feb., 7 Mar, 4 April.	
Dublin Examiner.		Critical, 7 Feb.
Dundee Advertiser.	Appro., 6, 12, 13 Feb.	
Ealing Gazette.	Appro., 7 March.	
East Anglian Daily Times.	Appro., 11 Oct., 1907.	
East Coast Illustrated News.		Report, 1 Feb.
East Essex Advertiser.	Appro., 7 Sept., and 11 April.	
Eastern Daily Press.	Appro., 10, 11 Feb., 6 March.	
Eastern Morning News.	Appro., 11 Feb., 3 March, 7 April.	Report, 22 Feb.
Edinburgh Evening Dispatch.	Appro., 16 Feb.	
Electric Times and Lighting.		Adverse, 13 Feb.
Elgin Courant.	Appro.	Amusing, 21 Sept., 3 March.
Estates Gazette.		Report, 24 Aug.
Electrical Investments.		Adverse, 12 Feb.
Evening News.	Appro., 26 Aug., 5, 8, 14, 28 Feb., 2 April.	
Evening Standard.	Appro., 2, 4, 13, 26 Aug., 9 Sept., 1 Oct., 5, 6, 12, 13, 20, 24 Feb., 9, 10, & 11 Apl.	
Evening Telegraph and Post.		Diagram, 15 Feb.
Express and Star.		Critical, 6th.
Financial Times.		Report, 28 Jan.
Fishing Gazette.	Appro., 4 April.	
Framlingham News.	Appro., 15 Feb.	
Freeman's Journal, Dublin.		Report, 10 Feb., 6 March. Critical, 6 April.
Fruit Journal.	Appro., 28 March.	
Gas World.		Ridiculous, 15 Feb.
Glasgow Citizen.	Appro., 10 Feb., Mr. Cross, 13 Feb.	
Glasgow Evening News.	Appro., 6th, 10th, 13th, 17th, amusing.	Report, 14 Sept., 6 April.
Glasgow Herald.	Appro., 28 Jan., 5 Feb.	

Glasgow News.	Appro., 4, 6, 8, and 13 Feb.	
Glasgow Record.		Critical, 11, 13 Feb., 7 April.
Glasgow Times.	Appro., 13 Feb., 6 April.	
Glasgow Weekly Herald.	Appro., 4 April.	
Gleaner, The (Jamaica.)		Report, 13 Aug.
Globe.	Appro., 19 July, 5, 7 Feb., 4 and 7 April.	
Gloucester Citizen.	Appro., 11, 13 Feb.	
Grimsby County Times.	Appro., 11 April.	
Grimsby Telegraph.		Critical, 10 Feb., 6 April.
Guernsey, E. Press.	Appro., 28 Feb., 4 April.	
Halifax Evening Courier.		Report, 22 Feb.
Hampstead Record.		Report, 15 Feb.
Hansard.		Report, 12 Feb.
Hastings Advertiser.	Appro., 18 Feb., 2 April.	
Hereford Times.		11 April.
Herts Advertiser.		Critical, 8 Feb.
Herts Express.	Appro., 10 and 14 March.	
Hexham Herald.	Appro., 3 July, 13 Feb.	
Horological Journal.		Report and Amusing, Sept. and Oct., 1907.
Hull Daily Mail.	Appro., 3, 31 Aug., 13 Feb.	
Hull Daily News.		27 March.
Ideas.		Comic, 26 Feb.
Irish Independent.		Critical, 12 Feb.
Irish News.		7 March, 4 April.
Isle of Wight Observer.	Appro., 15 Feb.	
Isle of Wight Times		Critical, 27 Feb.
John Bull.	Appro., 15 and 22 Feb.	
Journal of Gas Lighting.		Critical, 23 July. Report, 11 Feb.
Keen's Bath Journal.		Report, 15 Feb.
Kent Messenger.		Poem, 15 Feb.
Keighley News.		Critical, 13 Feb.
Lady.		Humorous, 13 Feb.
Lady's Pictorial.	Appro., 15 Feb.	Amusing, 21 Feb.
Lancashire Daily Post.		Report, 10, 13 Feb.
Lancet.		Cynical, 14 Dec.
Law Times.		Critical, 27 Feb.
Leeds Mercury.	Appro., Aug. 27.	
Leek Post.	Appro., 15 Feb.	
Leck Times.	Appro., 8 Feb.	
Leicester Post.	Appro., 11, 13 Feb., 6 March.	
Lincoln Gazette.	Appro., 15 Feb.	
Lincoln Leader.	Appro., 15 Feb.	
Lincolnshire Echo.	Appro., 10 March.	
Liverpool Post.		Critical, 9 and 28 Aug., and Scientific, 12, 17 Feb. Report, 22 Feb., 10 March.
Liverpool Courier.	Appro., 5 Feb.	
Liverpool Evening Express.	Appro., 18 Oct.	Report, 10 Feb.
Lloyd's Weekly.		Report, 9 Feb.
London Chat.		Amusing, 11 April.
Lymington Chronicle	Appro., 13 Feb., 7 April.	
Macclesfield Times.		Report, 14 Feb.
Mail (Dublin).		Critical, 13 Feb.
Manchester Courier,	Appro., 5 Feb., 7 Mar., 4 April.	
Manchester Dispatch.	Appro., 5, 6, 7, 8, 14 Feb.	Diagram, 12 Feb.
Manchester E. Chronicle.	Appro. 5, 6, 11, 12, 13 Feb.	
Manchester Guardian.	Appro., 5, 6, 19 Feb., 4 April.	
Manchester Weekly Times.	Appro., 8 Feb.	
Mark Lane Express.		Critical, 17 Feb.
Medical Express.	Appro., 11 Feb.	Report, 10 Feb.
Medical Times.	Appro., 11 April.	Critical, 15 Feb.
Midland Evening News.	Appro., 8 Feb.	Critical, 5 Feb., Report, 10 Feb.
Midland Free Press.		Critical, 15 Feb.
Midland Mail.	Appro., 29 Feb.	
Modern Business.	Appro., March.	
Modern Society.	Appro., 15 Feb.	
Morning Advertiser.		Report, 5, 13 Feb.
Morning Leader.	Appro., 5, 10, 13, 20 Feb.	
Morning Post.		Critical, 10, 13, 4 April, 11 April.
Nature.		Critical, 20 Feb.
New Age.	Appro., 15 Feb.	
New York Mail.		Report, 6 Decr.
Newcastle Chronicle.	Appro., 10 Feb., 4 April.	
Newcastle Journal.	Appro., 6 Feb.	
News.	Appro., 18 Oct., 3 Feb., 14 and 15 Mar., 27 Sept.	
News and Notes.		Report, 1 Aug.
Northampton Mercury.		Report, 27 March.
Notts E. Post.		Report, 13 Feb.
Notts Express,	Appro., 10 and 10 Feb.	
Nottingham Guardian.	Appro., 10, 11 Feb.	
Northampton Daily Reports.		Report, 13 Feb.
Northern Daily Mail.		Report, 2 Aug.
Northern Echo.		Amusing, 19 Aug., and 27 Feb.
Observer.		Report, 9 Feb.
Oldham Evening Chronicle	Appro., 8, 10, 13 Feb.	
Onlooker	Appro., 15 Feb.	
Oxford Chronicle.		Adverse, 3 April.
Pall Mall Gazette.		Critical, 5, 13 Feb., Report, 8 Feb., 13 March, 4 April, 6 April.
Penny Pictorial.	Appro., 7 March.	
People.	Appro., 9 Feb.	
People's Journal.	Appro., 15 Feb.	
Poole Herald.	Appro., 13 Feb., 9 April.	
Portsmouth Evening News.		Critical, 5 Feb.
Public Opinion.		Adverse, 28 Feb.
Punch.		Amusing, 26 Feb.
Reynolds' Weekly.		Critical, 23 Feb.
Richmond Herald.	Appro., 8 Feb.	
St. Andrews Citizen.	Appro., 15 Feb.	
St. Ann's-on-Sea Express.	Appro., 29 Jan.	
Saturday Review.		Critical, 8 Feb.
Scarboro' Evening News.		
Schoolmaster.	Appro., 11 April.	
Scottish Review.		Adverse, 20 Feb.
Scottish Field.	Appro., March.	
Sheffield Daily Telegraph.		Critical, 4 Nov., Critical, 27 Aug. Adverse, 21 Sept.
Sheffield Independent.	Appro., 4 Sept., 10, 22 Feb., 6 March.	
Sketch.	Appro., 14 Aug.	Humorous, 12 Feb.
Spectator.	Appro., 3 Aug.	
Sphere.	Appro., 19 Oct.	
Springfield Daily Republican, U.S.A.	Appro., 22 Aug.	
Socialist Review.	Appro., March.	
South Eastern Advertiser.		Report, 18 Feb.
South Eastern Gazette.		Critical, 4, 11, 15 Feb.
South Wales Argus.	Appro., 5 Feb.	
South Wales Daily News.	Appro., 6, 12 Feb., 4 April.	
South Wales Echo.		4 April, Report, 6 Aug.
Southern D. Echo.	Appro., 5, 13 Feb., 8 April.	
Southport Visitor.		Report, 6 Aug.
Staffordshire Sentinel.		Critical, 5, 6, 8, 11 Feb.
Standard.		Neutral, 5, 13 Feb., 6 March, 2, 8, 10, 11, 14, & 15 Apl.
Star.	Appro., 5, 7, 10, 11, 20 Feb.	Critical, 30 Sept., Report, 14 Dec.
Stroud News.	Appro., 23 Aug., 12 Feb.	
Sunday Chronicle.		Adverse, 9 Feb.
Sunday Times.		Report, 5 April.
Sunderland Echo.		Report, 3 Aug.
Sussex Daily News.	Appro., 11, 13 Feb.	
Swindon Advertiser.	Appro., 8 Feb.	
Sydney Stock and Station Journal.	Appro., Amusing, 5 Dec.	
T.P.'s Weekly.		Report, 18 Oct.
Tatler,		Critical, 12, 19 Feb.

Tewkesbury W. Record.	Appro., 15 Feb.		*Westminster Gazette.*		Critical, 5, 15 Feb., 18 July.
Times of India.		Report, 6 Nov.	*Wolverhampton Express and Star.*		Snowden, 2 April.
The Times.		Report, 13 Feb., 4 April.	*The World.*	Appro., 20 Aug.	Epigram, 12 Feb.
Tit-Bits.		Report, 14 Sept.	*Yarmouth Independent.*	Appro., 11 April.	
Trade Protection Journal.		Critical, Nov.	*Yorkshire Daily Post.*		Paragraph, 5 Feb.
Treasury.		Cynical, Nov.	*Yorkshire Evening Post.*	Appro., 5, 11 Feb., 4 April.	
Tribune.	Appro., 5 Feb., 27 Jan.		*Yorkshire Evening Press.*	Appro., 9 April.	
University Correspondent.		Critical, Nov.	*Yorkshire Herald.*		Report, 8 April.
Vanity Fair.	Appro., 26 Feb.		*Yorkshire Observer.*	Appro., 10 Feb.	Critical, 20 July.
Wallasey News.		Report, 25 Jan.	*Yorkshire Telegraph and Star.*	Appro., 5 Feb.	
Weekly Dispatch.	Appro., 9, 16 Feb., Riddle, 14 July.		*Yorkshire W. Post.*	Appro., 11 April.	Willett, portrait.
Weekly Scotsman.		Report, 15 Feb.			
West Herts Observer.	Appro., 11 April.				
Western Daily News.		Critical, 10 Feb.			
Western Mail.		Critical, 5 Feb.			
Western Morning News.	Appro., 6, 14 Feb.				
Western Mercury.	Appro., 6 March.				
Western Press.	Appro., 10 Feb.				

SUMMARY.

Approving	139
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APPENDIX B.

Paper handed in by the *Chairman.*

LETTER ADDRESSED TO ROBERT PEARCE, ESQ., A MEMBER OF THE COMMITTEE, BY THE DRAUGHTSMEN AND OTHER EMPLOYEES OF MESSRS. VICKERS, SONS AND MAXIM AND OTHERS.

To Robert Pearce, Esq., M.P.,

House of Commons,

Westminster.

February, 1908.

We the undersigned desire to express ourselves, by this means, as being strongly in favour of any Bill dealing with the systematic alteration of the clock, in order to cause the working day to be adjusted more evenly, between the hours of sunrise and sunset, than is the case at present.

We submit this voting in the hope that others may do likewise, and thus show that the general public are really anxious that such a Bill may become law.

(Signed) A. P. PYNE, Chief Draughtsman,

EDW. H. P. SCANTLEBURY, and 197 others.

APPENDIX C.

Paper handed in by Mr. *Edward Satterthwaite.*

MEMORANDUM on the DAYLIGHT SAVING BILL, by the Committee for General Purposes of the Stock Exchange.

1. This Bill, if passed, would inevitably create a dislocation of Stock Exchange business in the chief business centre of the world. The London market is pre-eminent among the Stock Exchanges of the United Kingdom, but in all probability the conditions of this Bill would also adversely affect the business of the Provincial Exchanges. It is proposed, however, to consider the question from a London standpoint only. From its geographical position, aided by other causes, London is the Clearing House of the world in Stock Exchange matters. Business, both for investment and speculation, centres in London from the Continent of Europe, from the United States and Canada, from South Africa, and to a lesser degree from India, Australia and Japan.

Investors and Speculators in these countries find it convenient to send the bulk of their orders to London, where, owing to its central position, they find a ready market.

Speaking generally, it may be said that the bulk of International business is done in three groups of Securities—

Foreign Government Securities,
American Railway Securities, and
Mining Securities.

The American and Colonial operator deals almost exclusively in the Securities of his own country, while British and Continental operators deal in all, and there is a free market in all in London.

Placed as it is, London attracts business in American and South African Securities from all parts of the Continent, and in American Securities to a large extent from America itself. The provisions of this Bill would, twice or more in each year, cause an alteration of British time, which would not be current in these countries, and to which their people would not be accustomed. This would inevitably cause irritation, and would tend to business being done direct with the country of origin of the Stock to be dealt in, where such disturbing conditions did not exist, and consequently business would drift away from London.

2. As far as the Western Markets are concerned, the principal centre for Stock Exchange business is New York.

The hours of business there are from 10 to 3, and there being 5 hours difference of time, the London Market, which closes in The Stock Exchange at 4 p.m., is open for 1 hour (3 to 4 p.m.) during the New York session (10 to 11 a.m.). During this hour enormous transactions take place, which are continued in the street after The Stock Exchange is closed.

As shown in paragraph 7, to which attention is particularly directed, this forms a most important part of the business of The Stock Exchange, and the Bill would throw it out of gear during six months of the year, in five of which the two markets would not be open simultaneously.

In times of crisis, such as occurred last Autumn, it would be of urgent importance that the two Exchanges should be simultaneously open for at least some portion of the day.

3. The Committee for General Purposes regret that it is impossible to estimate the relative proportion of Eastern to Western business, nor of the latter to the whole of business of The Stock Exchange, but it may safely be said that the amount of British Capital invested in Western Securities is enormous, and any alteration adversely affecting international dealings would impair the freedom of Markets, and would thus be most detrimental not only to those engaged in Stock Exchange business, but also to those members of the public who have investments or dealings in such securities.

4/5. The difficulty might to a certain extent be obviated by keeping The Stock Exchange open later during the summer months, but this would be extremely inconvenient, as it would practically compel the Markets in other Securities to remain open, and would not allow time for Members to attend to their correspondence and prepare contract notes for the day's business before the departure of the Mails.

It is unlikely that the New York Stock Exchange would be able to adapt itself to London hours by commencing earlier; it already opens at the early hour of 10 a.m., and during the summer months practically the whole business population lives at some distance out of New York, coming in by steamer and train, and it must be remembered that owing to difference of latitude the Summer day in New York is considerably shorter than in London.

6. The effect of the proposal would seem to be that a large proportion of Members and their employees would have to be present 1 hour and 20 minutes earlier, and, in order to deal with the American business, to stay just as late as they do at present.

7. From enquiries at the office of the Anglo-American Telegraph Company, which, with the Commercial Cable Company, has direct access to The Stock Exchange, the Committee learn that the average number of cables received at that office during the hours the New York Stock Exchange is open is 1,000, of which about half are sent or received between 3 and 4 o'clock, messages and their replies being at times received in a very short space of time—viz., 1 to 3 minutes. The number naturally varies with the activity of business, as the enclosed table will show:

NUMBERS OF MESSAGES RECEIVED AND SENT BY THE ANGLO-AMERICAN TELEGRAPH COMPANY.

(*a*)

	3 *days of last week. Markets fairly active.* *Between* 3 *and* 4.	4 *to* 8.
May 25th	967	1,202
„ 27th	727	968
„ 28th	543	627

NOTE.—During this period the Commercial Cable Company's cables were interrupted.

(*b*)

	First week in April. Very little doing.	
April 1st	420	417
„ 2nd	370	235
„ 3rd	287	274
„ 6th	393	266
„ 8th	285	256
„ 9th	359	307
„ 10th	407	485

NOTE.—These are exclusive of messages sent through the Commercial Cable Company.

8. In conclusion, the Committee desire to point out that while they think the scheme might in some cases be of personal advantage to individuals, both Members and clerks, they are of opinion that it would in very many instances cause longer hours to both, and that its adoption would be detrimental to the business interests of the Institution.

R. W. INGLIS,
Chairman.

Committee Room,
The Stock Exchange,
9th June, 1908.

APPENDIX D.

Paper handed in by *James Arranloe Johnston*, of 2, Plowden Buildings, Temple, E.C., Barrister-at-law.

I have examined the Statutes which apply to the United Kingdom and those which apply only to England and Wales for the purpose of ascertaining references to clock time contained in such Statutes. I produce a schedule which I have prepared of such Statutes, with the periods of time referred to in them. This Schedule is as full as I could make it in the time at my disposal, but it may not be exhaustive, and it does not include Statutes which apply only to Scotland or Ireland.

I have also made a note at the end of the schedule relating to similar references which are contained in statutory rules, regulations, and bye-laws.

SCHEDULE.

Session and Chapter.	Short Title.	Sections.	Period of time referred to.
29 Car. 2. c. 7 –	Sunday Observance Act, 1677.	S. 3	9 of the clock in the morning. 4 of the clock in the afternoon (Sunday).
25 Geo. 2, c. 36 –	Disorderly Houses Act, 1751.	S. 3	Before the hour of noon.
26 Geo. 3, c. 71 –	Knackers Act, 1786 –	S. 2	10 to 12 of the clock in the forenoon (except Sunday).
		S. 5	8 of the clock in the morning to 5 in the evening. (October to March.) 6 of the clock in the morning to 8 in the evening. (April to September).
36 Geo. 3, c. 88 –	Sale of Hay in Metropolis Act, 1796.	S. 10	6 of the clock in the evening. 9 of the clock in the morning to 6 of the clock in the evening. (Except Sunday).
		S. 15	3 of the clock in the afternoon (Ladyday to Michaelmas.) 2 of the clock in the afternoon (Michaelmas to Ladyday).
		S. 16	5 of the clock in the afternoon. (Ladyday to Michaelmas.) 3 of the clock in the afternoon. (Michaelmas to Ladyday.)
3 Geo. 4, c. cvi. –	Sale of Bread in Metropolis Act, 1822.	S. 16	9 of the clock in the forenoon to 1 of the clock in the afternoon (Sunday).
1 & 2 Will. 4, c. 60	Vestries Act, 1831 –	S. 16	4 of the clock of the afternoon.
3 & 4 Will. 4, c. 90	Lighting and Watching Act, 1833.	Ss. 10, 17.	8 of the clock in the forenoon to 4 of the clock in the afternoon.
		S. 22	At noon (Monday).
6 & 7 Will. 4, c. 37	Bread Act, 1836 – –	S. 14	Half-past 1 of the clock in the afternoon (Sunday).
6 & 7 Will. 4, c. 86	Births, Deaths, and Marriages, Registration Act, 1836.	S. 37	Between the hours of 10 in the morning and 4 in the afternoon. (Except Sundays, Christmas Day, and Good Friday.)
1 & 2 Vict., c. 74 –	Small Tenements Recovery Act, 1838.	S. 1	Between the hours of 9 in the morning and 4 in the afternoon.
2 & 3 Vict. c., 47 –	Metropolitan Police Act, 1839.	S. 36	The hour of 11 in the evening to the hour of 6 in the morning.
		S. 67	Between the hours of 8 in the evening and 6 in the morning.
2 & 3 Vict., c. 71 –	Metropolitan Police Courts Act, 1839.	S. 12	10 of the clock in the morning to 5 of the clock in the afternoon. (Except Sundays, Christmas Day and Good Friday).
3 & 4 Vict., c. 92 –	Non-Parochial Registers Act, 1840.	S. 5	Between the hours of 10 in the morning and 4 in the afternoon. (Except Sundays, Christmas Day and Good Friday.)
5 & 6 Vict., c. 45 –	Copyright Act, 1842 –	S. 7	Between the hours of 10 in the forenoon and 4 in the afternoon.
6 & 7 Vict., c. 18 –	Parliamentary Registration Act, 1843.	Ss. 8, 18	Between the hours of 10 of the clock in the forenoon and 4 of the clock in the afternoon. (August 26th to September 8th, except Sundays.)
		S. 12	Ditto. (During July and during 14 days after publication of list of voters, except Sundays.)
		Ss. 13, 14 & 20	Ditto (during 14 days after publication of list of voters, except Sundays).
		S. 16	Ditto (August 10th to 31st, except Sundays).
7 & 8 Vict., c. 101	Poor Law Amendment Act, 1844.	S. 33	Between the hours of 11 and 3.

Session and Chapter.	Short Title.	Sections.	Period of time referred to.
8 & 9 Vict., c. 109	Gaming Act, 1845 –	S. 13	After 1 and before 8 of the clock in the morning.
10 & 11 Vict., c. 17	Waterworks Clauses Act, 1847.	S. 57	9 of the clock in the forenoon to 4 of the clock in the afternoon.
10 & 11 Vict., c. 34	Towns Improvement Clauses Act, 1847.	S. 88	8 of the clock in the forenoon (except Sundays).
10 & 11 Vict., c. 89	Town Police Clauses Act, 1847.	S. 28	Before the hour of 8 in the morning.
15 & 16 Vict., c. 84	Metropolis (Water) Act, 1852.	S. 15	9 of the clock in the forenoon to 4 of the clock in the afternoon.
23 & 24 Vict., c. 27	Refreshment Houses Act. 1860.	S. 6	10 of the clock at night to 5 of the clock of the following morning.
23 & 24 Vict., c. 107	Refreshment Houses (Ireland) Act, 1860.	S. 6	9 of the clock at night to 7 of the clock of the following morning.
24 & 25 Vict., c. 91	Revenue (No. 2) Act, 1861	S 8. S. 9	10 of the clock at night. 10 o'clock at night.
24 & 25 Vict., c. 96	Larceny Act, 1861 –	S. 1	9 of the clock in the evening to 6 of the clock in the morning.
24 & 25 Vict., c. 109	Salmon Fishery Act, 1861	Ss. 21, 22	12 of the clock at noon (Saturday) to 6 of the clock (Monday morning).
24 & 25 Vict., c. 110	Old Metal Dealers Act, 1861	S. 8	The hour of 9 in the morning and 6 in the evening.
26 & 27 Vict., c. 93	Waterworks Clauses Act, 1863.	S. 15	Between the hours of 10 in the forenoon and 4 in the afternoon.
27 & 28 Vict., c. 64	Public House Closing Act, 1864.	S. 5	Closing hour to 4 o'clock in the morning.
		S.10	Between the hours of 1 and 4 o'clock in the morning.
28 & 29 Vict., c. 34	Metropolitan Houseless Poor Act, 1865.	Ss. 2, 5	6 o'clock in the evening to 8 in the morning. (October to March.) 8 o'clock in the evening to 8 in the morning (April to September.)
28 & 29 Vict., c. 36	County Voters Registration Act, 1865.	S. 10	10 of the clock in the forenoon to 4 of the clock in the afternoon. (September 5th to 8th, except Sunday.)
28 & 29 Vict., c. 77	Public House Closing Act, 1865.	S. 2	Between the hours of 2 and 4 o'clock in the morning.
28 & 29 Vict., c. 126	Prison Act, 1865 –	Sched. 1 R. 5	10 o'clock at night to 6 o'clock in the morning.
30 & 31 Vict., c. 102	Representation of the People Act, 1867.	S. 29	10 of the clock in the morning to 4 of the clock in the afternoon. (July 23rd to August 5th, except Sunday.)
		S. 43	8 o'clock in the morning to 4 o'clock in the afternoon. (Except Sunday, Christmas Day, Ascension Day, and Good Friday.)
		S. 44	2 o'clock in the afternoon.
30 & 31 Vict., c. 134	Metropolitan Streets Act, 1867.	Ss. 5, 16	Between the hours of 10 in the morning and 7 in the evening.
31 & 32 Vict., c. 110	Telegraph Act, 1868 –	S. 16	Between the hours of 6 p.m. and 9 a.m. 9 a.m. and 6 p.m.
32 & 33 Vict., c. 27	Wine and Beerhouse Act, 1869.	S. 7	Between the hours of 10 in the morning and 5 in the afternoon. (Sunday.)
34 & 35 Vict., c. 41	Gasworks Clauses Act, 1871	S. 29	5 o'clock to 10 o'clock in the afternoon. (October to March.) 8 o'clock to 11 o'clock in the afternoon. (April to September.)
35 & 36 Vict., c. 33	Ballot Act, 1872 – –	Sched. 1 Part 1 R 4	Between the hours of 10 in the forenoon and 3 in the afternoon.
		R. 7	Between the hours of 10 in the morning and 2 in the afternoon.
35 & 36 Vict., c. 77	Metalliferous Mines Regulation Act, 1872.	S. 5	Midnight (Saturday) to midnight (Saturday).
35 & 36 Vict., c. 93	Pawnbrokers Act, 1872 –	S. 42	10 o'clock in the morning and 5 o'clock in the afternoon (Sunday).
35 & 36 Vict., c. 94	Licensing Act, 1872 –	S. 28	Every night at 10 of the clock.
36 & 37 Vict., c. 70	Revising Barristers Act, 1873.	S. 4	6 to 7 o'clock in the evening.
36 & 37 Vict., c. 71	Salmon Fishery Act, 1873	S. 39	6 o'clock on Friday afternoon to 12 o'clock on Monday at noon.
37 & 38 Vict., c. 49	Licensing Act, 1874 –	Ss. 3, 6 in Metropolis	Midnight (Saturday) to 1 o'clock in the afternoon (Sunday). 11 o'clock (Sunday night) to 5 o'clock (Monday morning). Half-an-hour after midnight to 5 o'clock on the same morning.

Session and Chapter.	Short Title.	Sections.	Period of time referred to.
37 & 38 Vict., . 49	Licensing Act, 1874 –	Ss. 3, 6 in Towns	11 o'clock (Saturday night) to half-an-hour after noon (Sunday). 10 o'clock (Sunday night) to 6 o'clock (Monday morning). 11 o'clock at night to 6 o'clock on the following morning.
		Elsewhere	10 o'clock (Saturday night) to half-an-hour after noon (Sunday). 10 o'clock (Sunday night) to 6 o'clock (Monday morning). 10 o'clock at night to 6 o'clock on the following morning.
			3 or half-past 2 (Sunday afternoon) to 6 o'clock (Sunday).
		S. 11	Closing hour to 4 o'clock in the morning.
		S. 19	10 o'clock at night.
38 & 39 Vict., c. 21	Public Entertainments Act, 1875.	S. 1	The hour of noon.
38 & 39 Vict., c., 55	Public Health Act, 1875 –	S. 305	Between the hours of 9 in the forenoon and 6 in the afternoon.
41 & 42 Vict., c. 26	Parliamentary and Municipal Registration Act, 1878	S. 24	10 of the clock in the forenoon to 4 of the clock in the afternoon (September 5th to to 8th, except Sunday.)
43 & 44 Vict., c. 41	Burial Laws Amendment Act, 1880.	S. 3	10 o'clock in the forenoon to 6 o'clock (or 3 o'clock) in the afternoon.
45 & 46 Vict., c. 36	Casual Poor Act, 1882 –	S. 4	9 o'clock in the morning.
45 & 46 Vict., c. 50	Municipal Corporations Act, 1882.	Sched. 3 Part 2 R. 7	5 o'clock in the afternoon.
		Part 2 R. 17 Part 4 R 9	2 o'clock in the afternoon.
46 & 47 Vict., c. 34	Cheap Trains Act, 1883 –	S. 3	6 o'clock in the evening to 8 o'clock in the morning.
47 & 48 Vict., c. 75	Canal Boats Act, 1884 –	S. 9	6 a.m. to 9 p.m.
48 & 49 Vict., c. 10	Elections (Hours of Poll) Act, 1885.	S. 1	8 o'clock in the forenoon to 8 o'clock in the afternoon.
48 & 49 Vict., c. 72	Housing of the Working Classes Act, 1885.	S. 9	6 o'clock in the morning to 9 o'clock in the evening.
49 & 50 Vict., c. 14	Marriage Act, 1886 –	S. 1	Between the hours of 8 in the forenoon and 3 in the afternoon.
50 & 51 Vict., c. 48	Allotments Act, 1887 –	S. 9 (8)	5 to 8 o'clock in the evening.
50 & 51 Vict., c. 58	Coal Mines Regulation Act, 1887.	Ss. 6, 7	Midnight (Saturday) to midnight (Saturday.)
		S. 7	Between the hours of 9 at night and 5 on the following morning.
			2 o'clock (Saturday afternoon).
51 & 52 Vict., c. 43	County Courts Act, 1888 –	S. 142	Between the hours of 9 in the morning and 4 in the afternoon.
53 & 54 Vict., c. 34	Infectious Disease (Prevention) Act, 1890.	S. 17	10 o'clock of the forenoon to 6 o'clock of the afternoon.
54 & 55 Vict., c. 76	Public Health (London) Act, 1891.	S. 141	6 o'clock in the morning to 9 o'clock in the evening.
55 & 56 Vict., c. 53	Public Libraries Act, 1892	Sched. 1 Part 1 R. 5	Between 8 a.m. and 8 p.m.
56 & 57 Vict., c. 73	Local Government Act, 1894	S. 2	6 o'clock in the evening.
		S. 48	Between the hours of 6 and 8 in the evening.
57 & 58 Vict., c. 15	Music and Dancing Licences (Middlesex) Act, 1894.	S. 2 (7)	After midnight and before the hour of noon.
57 & 58 Vict., c. 60	Merchant Shipping Act, 1894.	S. 329	3 o'clock in the afternoon.
60 & 61 Vict., c. 38	Public Health (Scotland) Act, 1897.	S. 3	9 o'clock in the morning to 6 o'clock in the evening.
1 Edw. 7, c. 22 –	Factory and Workshop Act, 1901.	Ss. 24, 25	6 or 7 o'clock in the morning to 6 or 7 o'clock in the evening. (Except Saturdays).
			6 or 7 o'clock in the morning to noon or half-past 12 o'clock in the afternoon (Saturday).
		Ss. 26, 27	6, 7 or 8 o'clock in the morning to 6, 7 or 8 o'clock in the evening. (Except Saturdays.)
			6, 7 or 8 o'clock in the morning to 2, 3 or 4 o'clock in the afternoon (Saturday).

Session and Chapter.	Short Title.	Sections.	Period of time referred to.
1 Edw. 7, c. 22 –	Factory and Workshop Act, 1901	S. 29	6 o'clock in the morning to 10 o'clock in the evening (except Saturday).
			6 o'clock in the morning to 4 o'clock in the afternoon (Saturday).
		S. 30	6 o'clock in the morning to 4 o'clock in the afternoon (Saturday).
		S. 36	9 o'clock in the morning to 8 or 9 o'clock in the evening (except Saturday).
		S. 37	4 o'clock in the morning to 10 o'clock in the evening.
		S. 38	5 o'clock in the morning to 9 o'clock in the evening.
		S. 44	Half-past 4 o'clock in the afternoon (Saturday).
		S. 47	Sunset to 9 o'clock in the evening (Saturday).
			6 o'clock in the morning to 9 o'clock in the evening (except Saturday and Sunday).
		S. 49	6, 7 or 8 o'clock in the morning to 8, 9 or 10 o'clock in the evening. (except Saturday).
		S. 50	6 or 7 o'clock in the morning to 8 or 9 o'clock in the evening (except Saturday).
		S. 52	6 o'clock in the morning to 7 o'clock in the evening (except Saturday).
		S. 92	7 to 8 and 10 to 11 o'clock in the forenoon. 3 to 4 o'clock in the afternoon.
		S. 111	6 o'clock in the morning to 9 o'clock in the evening (except Saturday).
			6 o'clock in the morning to 4 o'clock in the afternoon (Saturday).
			6 o'clock in the morning to 1 o'clock in the afternoon.
			1 o'clock in the afternoon to 8 o'clock in the evening (4 o'clock Saturday).
		S. 156	9 o'clock in the evening to 6 o'clock in the morning.
			Midnight (Saturday) to midnight (Saturday).
3 Edw. 7, c. 45	Employment of Children Act, 1903.	S. 3	Between the hours of 9 in the evening and 6 in the morning.
4 Edw., 7 c. 15 --	Prevention of Cruelty to Children Act, 1904.	S. 2	Between 9 p.m. and 6 a.m.
4 Edw., 7, c. 31 –	Shop Hours Act, 1904 –	S. 2	7 o'clock in the evening.
			1 o'clock in the afternoon.
7 Edw. 7, c. 39 –	Factory and Workshop Act, 1907.	S. 2	6, 7 or 8 o'clock in the morning to 7, 8 or 9 o'clock in the evening (except Saturday).
7 Edw. 7, c. 53 --	Public Health Acts Amendment Act, 1907.	S. 70	Between the hours of 9 in the evening and 6 in the morning.
		S. 80	Between the hours of 9 in the morning and 9 in the evening.

NOTE.

In a very large number of cases the hours within which certain acts may be done are fixed by Rules, Orders, Regulations, or Bye-laws made by Government Departments, Local Authorities, and other public bodies in the exercise of powers vested in them by statute. These are far too numerous to be set out at length, but a few instances are given by way of example.

Rules.—Rules of the Supreme Court, Order 63, Rule 9 (fixing office hours in the Supreme Court). County Court Rules 1903, Order 1, Rule 3 (fixing office hours in the County Courts).

Orders.—General Order of Poor Law Commissioners, 24th July, 1847 (prescribing time table for paupers). General Order 18th December, 1882 (prescribing hours of admission to workhouse).

Vaccination Order, 1898, Article 7 (hours for visits of public vaccinator).

Closing Orders may be made by Local Authorities under the Shop Hours Act, 1904.

Regulations.—See the Museums and Gymnasiums Act, 1891, s. 7; Savings Bank Act, 1893, s. 3 and the Minute of the Board of Education, 1901, Regulation 16.

Bye-laws.—The Public Health (London) Act, 1891, S. 16, empowers the London County Council to make bye-laws prescribing times for the removal of fæcal or offensive matter.

Cf.—The Explosives Act, 1875, s. 34, and the Employment of Children Act, 1903, Ss. 1, 2, 3.

See also the numerous bye-laws for the good rule and government of a borough or a county made by borough councils and county councils under S. 23 of the Municipal Corporations Act, 1882.

Under S. 51 of the Public Health Acts Amendment Act, 1890, which empowers local authorities to grant music and dancing licences, the hours of opening and closing the premises in respect of which the licence is granted are to be inserted in the licence; and the hours during which a child may perform at an entertainment are to be specified in the licence granted under S. 3 of the Prevention of Cruelty to Children Act, 1904.

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on 24 February, 2020

APPENDIX E.

Paper handed in by the *Chairman*.

STATEMENT FROM THE LIVERPOOL CHAMBER OF COMMERCE.

The following statement gives the views of some of the Associations affiliated with the Chamber, and others, on the subject of the Daylight Saving Bill, viz. :—

Liverpool Society of Chartered Accountants	In favour.
Liverpool Wool Brokers' Association	Do.
Liverpool Society of Incorporated Accountants	Do.
Liverpool and District Fruit Buyers' Association	Do.
Tobacco Trade Section of the Chamber	Do.
Liverpool Shipping and Forwarding Agents' Association	Do.
Messrs. Joseph Crosfield & Sons	Do.
Liverpool Stock Exchange	Neutral.
Liverpool Steamship Owners' Association	Do.
Liverpool Shipowners' Association	Do.
Liverpool Provision Trade Association	Individual Members in favour of Bill, but Association has not yet considered it.
Corn Trade Association	Opposed to Bill unless made international.

EXPENSES OF WITNESSES.

NAME OF WITNESS.	Profession or Condition.	From whence Summoned.	Number of Days Absent from Home, under Orders of Committee.	Allowance during Absence from Home.	Expenses of Journey to London and back.	TOTAL Expenses allowed to Witness.
				£ s. d.	£ s. d.	£ s. d.
Arthur A. Rambaut	Radcliffe Observer, Oxford.	Oxford	1	Nil.	1 3 6	1 3 6
Leon Harold Lee	Headmaster, Raunds Schools.	Raunds	1	1 1 0	17 0	1 18 0
James Arranloe Johnston	Barrister-at-Law	(For special services rendered to the Committee, viz. : the preparation of a Return showing references to clock time in Statutes applying to the United Kingdom and to England and Wales.)				15 15 0
						£18 16 6